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PART B

SOLAR - GEOPHYSICAL DATA

ISSUED
NOVEMBER 1961

U. S. DEPARTMENT OF COMMERCE
NATIONAL BUREAU OF STANDARDS
CENTRAL RADIO PROPAGATION LABORATORY
BOULDER, COLORADO

SOLAR - GEOPHYSICAL DATA

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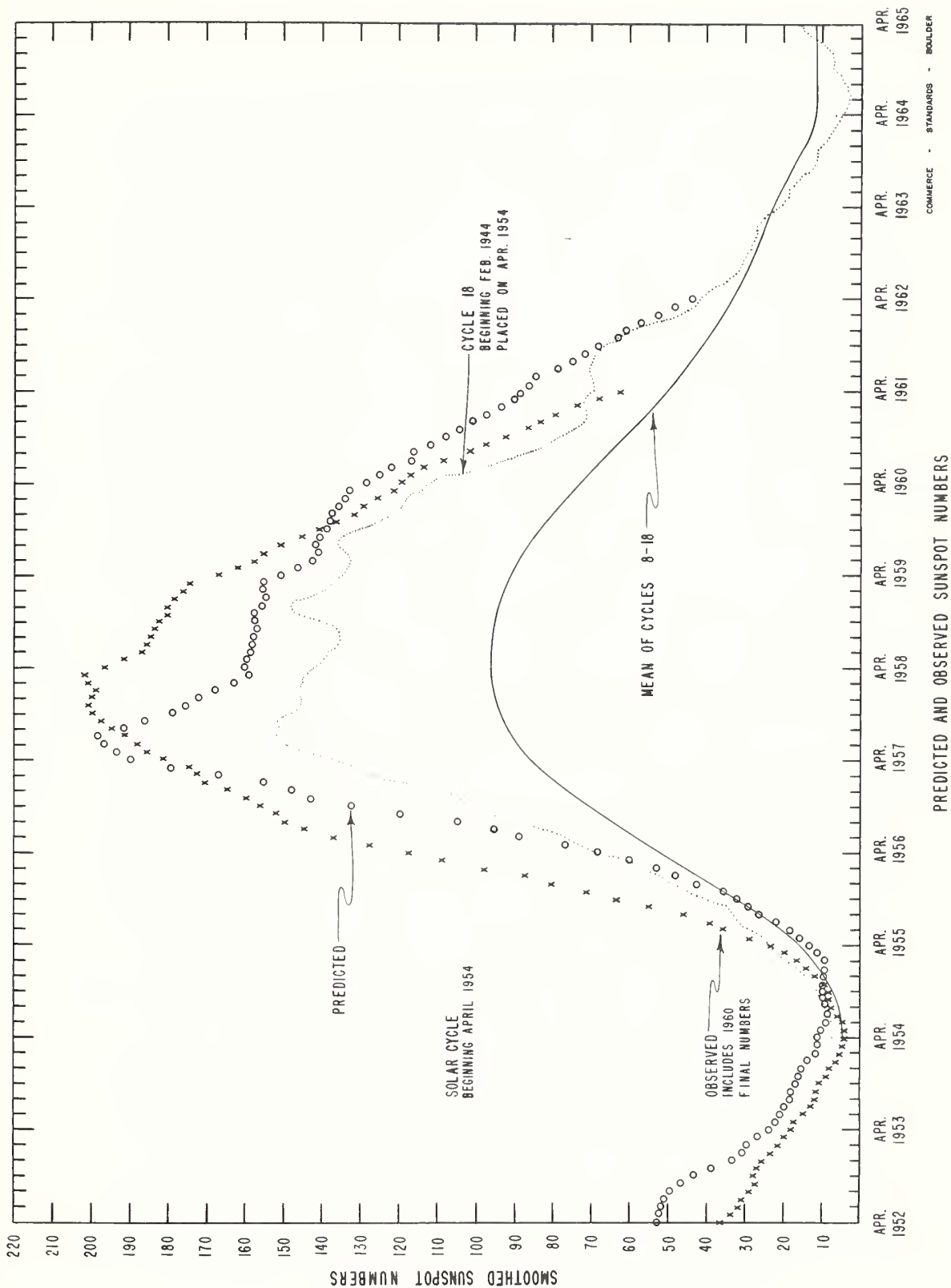
IX INTERNATIONAL GEOPHYSICAL CALENDAR 1962

- (a) Calendar
- (b) Text

The descriptive text has been republished this month, November 1961.

Sep. 1961	American Relative Sunspot Numbers R_A'
1	36
2	41
3	41
4	40
5	35
6	32
7	31
8	26
9	41
10	40
11	43
12	44
13	67
14	105
15	105
16	95
17	62
18	48
19	50
20	43
21	39
22	34
23	39
24	57
25	60
26	64
27	65
28	65
29	50
30	44
Mean:	51.4

Oct. 1961	Zürich Provisional Relative Sunspot Numbers R_Z	Daily Values Solar Flux at 2800 Mc, Ottawa, Canada Flux
1	45	98
2	47	97
3	53	97
4	50	102
5	46	108
6	42	101
7	40	99
8	46	98
9	47	107
10	53	106
11	58	107
12	76	111
13	47	111
14	44	105
15	53	106
16	46	100
17	39	97
18	39	95
19	46	95
20	38	93
21	47	92
22	33	89
23	16	85
24	17	85
25	7	83
26	13	83
27	6	84
28	7	86
29	9	85
30	9	87
31	8	86
Mean:	36.4	96.1



CALCIUM PLAGE AND SUNSPOT REGIONS

OCTOBER 1961

CMP OCTOBER 1961	Lat	McMath Plage Number	Return of Region	Calcium Plage Data			Sunspot Data		
				CMP Values Area Int.		History, Age	CMP Values Area Count		History
01.2	N12	6235	6212	3600	3.5	$\ell \text{ --- } \ell$ 3	70	3	$\ell \text{ --- } d$
02.0	S04	6238	New	(700)	(2)	$\ell \text{ --- } d$ 1			
02.6	N13	6237	New	2600	3.5	$\ell \text{ --- } \ell$ 1	180	17	$\ell \text{ --- } \ell$
04.2	S11	6241	New	700	3.5	b $\text{ / } \ell$ 1	140	6	b $\text{ / } \ell$
05.8	N16	6244	New	400	2	b $\text{ / } d$ 1	40	1	b $\text{ / } d$
06.1	N11	6242	New	200	1.5	b $\text{ / } d$ 1			
07.4	N13	6240	6217	1500	3	$\ell \text{ --- } \ell$ 3	110	2	b $\text{ / } d$
09.2	N05	6249	*	700	3.5	b $\text{ / } \ell$ 1	120	6	b $\text{ / } \ell$
09.6	N13	6243	6222	1400	1.5	$\ell \text{ --- } d$ 3	40	3	$\ell \text{ --- } d$
11.0	S10	6245	6223	1200	3	$\ell \text{ --- } \ell$ 2			
12.1	S10	6246	6223	2000	3	$\ell \text{ --- } \ell$ 2	150	2	b $\text{ / } \ell$
13.2	N14	6247	6224	1800	3.5	$\ell \text{ --- } \ell$ 2	130	3	$\ell \text{ --- } \ell$
14.3	N15	6258	New	(400)	(3)	b $\text{ / } \ell$ 1			
16.4	N18	6250	New	2600	3.5	$\ell \text{ --- } \ell$ 1	360	1	$\ell \text{ --- } \ell$
16.8	N10	6253	6233	(300)	(1.5)	$\ell \text{ --- } d$ 2			
19.8	N15	6254	New?	2100	3	$\ell \text{ --- } \ell$ 1?	60	2	b $\text{ / } d$
20.6	N08	6255	6228	600	2	$\ell \text{ --- } \ell$ 2			
23.9	S18	6256	New	1500	3	$\ell \text{ --- } \ell$ 1	50	2	$\ell \text{ --- } d$
24.1	N17	6257	**	1400	2.5	$\ell \text{ --- } \ell$ 1	(10)	(1)	$\ell \text{ --- } d$
24.8	S05	6260	New	1400	3	$\ell \text{ --- } \ell$ 1	(20)	(2)	$\ell \text{ --- } d$
25.5	N06	6261	New	400	1.5	b $\text{ / } \ell$ 1	20	3	b $\text{ / } \ell$
29.5	N13	6262	6237	1500	2.5	$\ell \text{ --- } \ell$ 2			
31.5	S13	6263	6241	1300	2.5	$\ell \text{ --- } \ell$ 2			

COMMERCE - STANDARDS - BOULDER

*New in position of 6221.

**New in position of 6232.

The McMath calcium plage number identifications and region histories should be considered as preliminary, subject to change after more detailed scrutiny.

PROVISIONAL CORONAL LINE EMISSION INDICES

SEPTEMBER 1961

CMP Sep 1961	North East Quadrant (observed 7 days earlier)				South East Quadrant (observed 7 days earlier)				South West Quadrant (observed 7 days later)				North West Quadrant (observed 7 days later)			
	G ₆	G ₁	R ₆	R ₁	G ₆	G ₁	R ₆	R ₁	G ₆	G ₁	R ₆	R ₁	G ₆	G ₁	R ₁	R ₆
1	34	46	6	8	14	18	8	10	20	28	x	x	39	50	x	x
2	34	39	7	8	15	28	9	12	x	x	x	x	x	x	x	x
3	34	53	17	32	21	36	12	20	x	x	x	x	x	x	x	x
4	64	87	27	44	39	76	18	20	28	36	9	12	72	143	21	52
5	x	x	x	x	x	x	x	x	39a	64a	6	12	63a	132a	14	24
6	x	x	x	x	x	x	x	x	42	48	12	16	41	56	14	20
7	41	68	22	35	38	85	9	20	37	62	x	x	29	34	x	x
8	33	40	7	13	34	60	6	10	x	x	x	x	54	87	x	x
9	x	x	x	x	x	x	x	x	36	61	9	10	48	76	13	30
10	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
11	54	68	9	10	30	40	12	18	x	x	x	x	x	x	x	x
12	106	171	16	24	68	160	15	32	67	118	x	x	129	160	x	x
13	121	157	16	36	56	132	17	28	x	x	x	x	x	x	x	x
14	101	123	18	32	42	84	8	16	30	48	13	30	36	45	11	15
15	72	92	x	x	58	90	x	x	25	44	11	18	42	52	12	15
16	x	x	x	x	x	x	x	x	22a	34a	7	10	70a	115a	14	28
17	x	x	x	x	x	x	x	x	15	28	6	7	34	50	9	10
18	38	42	16	24	13	22	8	12	24	56	30a	44a	36	50	41a	46a
19	22a	25a	14	16	11a	17a	11	16	7a	11a	x	x	19a	22a	x	x
20	50	64	11	16	11	14	9	12	18	45	25	40	37	64	23	32
21	56	84	x	x	17	35	x	x	23	50	17	20	56	78	35	56
22	60a	104a	x	x	18	47	x	x	x	x	x	x	x	x	x	x
23	24	38	14	15	24	44	11	13	26	50	3	7	41	59	10	22
24	20a	22a	x	x	22a	28a	x	x	14a	20a	7a	10a	18a	28a	6a	12a
25	x	x	x	x	x	x	x	x	17	22	12a	16a	22	31	11a	16a
26	36	53	x	x	17	22	x	x	11	14	18	25	18	20	16	20
27	x	x	x	x	x	x	x	x	13	17	34a	48a	32	42	30a	40a
28	13	20	15	20	7	8	12	15	19	22	x	x	36	53	x	x
29	24	32	16	46	11	16	7	13	9	14	x	x	x	x	x	x
30	89a	135a	14	23	14a	25a	10	13	12	22	x	x	53	73	9	14

x = no observations

a = low weight data

* = yellow line observed

COMMERCE - STANDARDS - BOULDER

PROVISIONAL CORONAL LINE EMISSION INDICES

OCTOBER 1961

11c

CMP Oct 1961	North East Quadrant (observed 7 days earlier)				South East Quadrant (observed 7 days earlier)				South West Quadrant (observed 7 days later)				North West Quadrant (observed 7 days later)			
	G ₆	G ₁	R ₆	R ₁	G ₆	G ₁	R ₆	R ₁	G ₆	G ₁	R ₆	R ₁	G ₆	G ₁	R ₆	R ₁
1	80	110	17	27	24	45	12	20	23	31	12a	18a	99	146	22a	43a
2	69	98	21a	24a	22	42	28a	35a	x	x	x	x	x	x	x	x
3	38	47	x	x	23	31	x	16	36	57	x	x	31	40	x	x
4	30	36	15	24	22	34	12	16	45	78	25	44	27	31	16	18
5	44	53	17	32	33	48	10	16	30	36	14	15	19	24	10	15
6	x	x	x	x	x	x	x	x	25	39	11	16	54	101	12	24
7	53a	81a	5	15	20a	31a	1	3	28	39	18	28	61	104	21	41
8	50a	72a	6a	10a	21a	28a	4a	5a	37	48	16	20	62	75	33	64
9	67	90	20a	48a	23	36	25a	40a	77	115	x	x	77	115	x	x
10	47	68	12	22	44	64	25	50	84	126	27	50	66	121	16	28
11	71	101	46a	65a	68	112	45a	88a	82	128	10a	16a	73	90	27a	40a
12	86	162	x	x	51	73	x	x	55	73	15a	24a	55	87	13a	28a
13	70	132	x	x	23	34	x	x	34	56	6a	7a	70	109	4a	5a
14	46	73	16	28	10	14	12	14	19	48	7a	10a	48	70	12a	15a
15	49	70	26a	41a	10	14	16a	18a	9a	10a	12a	15a	41a	68a	15a	25a
16	x	x	x	x	x	x	x	x	11	17	33a	48a	57	92	46a	98a
17	19a	32a	x	x	10a	16a	x	x	12	17	11a	32a	60	76	13a	16a
18	61	90	32	56	11	20	24	28	x	x	x	x	x	x	x	x
19	39	65	25	35	8	16	8	10	x	x	x	x	x	x	x	x
20	67	101	29	48	18	31	15	22	x	x	x	x	x	x	x	x
21	34	47	17	24	21	39	12	20	x	x	x	x	x	x	x	x
22	33	48	20	24	20	24	19	29	x	x	x	x	x	x	x	x
23	x	x	20a	52a	x	x	19a	24a	58	118	x	x	56	95	x	x
24	63	115	34	56	39	62	40	62	40	49	x	x	55	84	x	x
25	69	104	30a	56a	42	78	44a	63a	x	x	x	x	x	x	x	x
26	47	70	31a	40a	11	14	27a	36a	x	x	x	x	x	x	x	x
27	63	78	6a	7a	20	39	6a	7a	x	x	x	x	x	x	x	x
28	62	101	11a	20a	18	28	5a	7a	12	20	11	15	35	60	9	12
29	68	104	7	10	x	x	6	7	24	36	10a	10a	51	81	10a	15a
30	69	98	33a	48a	48	87	38a	76a	37	64	12a	14a	30	42	15a	24a
31	37	45	12a	12a	49	84	12a	20a	61	96	x	x	48	59	x	x

x = no observations

a = low weight data

* = yellow line observed

COMMERCE - STANDARDS - BOULDER

SOLAR FLARES

OCTOBER 1961

OBSERVATORY	DATE OCT 1961	OBSERVED UNIVERSAL TIME		LOCATION		DURA- TION — MINUTES	IM- POB- TANCE	OBS. COND.	TIME — U T	MEASUREMENTS			MAX. WIDTH Ha	MAX. INT. %	PROVISIONAL IONOSPHERIC EFFECT
		START	END	LAT.	APPROX. MER. DIST.					MCWATH PLACE REGION	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.			
ISTANBUL	01	0803	0834	N13	E13	6237	1								
	01	0820	0845	N03	W36	6234	1								
	01	0853	0905 D	N14	E17	6237	1								
	01	0855	0905 D	N14	W05	6235	1								
WENDEL	02	0741	0758	N14	E03	6237	1				4.00				
WENDEL	02	1433 E	1517 D	N14	E00	6237	1+				7.00				
SAC PEAK	02	1434	1522	N15	W00	6237	48	2		2.70	2.70	2.90	20		
ONDREJOV	02	1437 E	1525	N14	E03	6237	48 D	3	1445						
ONDREJOV	03	0720	0732	N16	E56	6240	12	3	0723		4.60	2.80			
KODAIKNL	03	0505 E	0515 D	N17	E68	6240	10 D	2	0505	1.80		1.68	114		
ONDREJOV	03	0739 E	0746	N07	W35	6235	7 D	3	0740			2.90			
WENDEL	03	0811 E	0824	N17	W59	6234	13 D				3.00				
WENDEL	03	1122 E	1143 D	N07	W38	6235	21 D				4.00				
WENDEL	04	0632 E	0705	S13	W01	6241	33 D				6.00				
CAPRI S	04	0828 E	0841 D	S14	W03	6241	13 D	2	0830	2.10		2.10			
WENDEL	04	0847 E	0904 D	S13	W02	6241	17 D				3.00				
ISTANBUL	05	0720 E	0735	N12	W57	6235	15 D								
KODAIKNL	09	0307 E	0309 D	N04	E01	6249	2 D	2		2.80	2.80				
KODAIKNL	09	0602 E	0608 D	N08	E53	6247	6 D	1	0602	1.50	2.50	1.60	114		
KODAIKNL	09	0602 E	0608 D	N08	E53	6247	1	1	0603			1.84			
ARCETRI	09	0945 E	0955 D	N20	E90	6250	10 D	3							
SAC PEAK	09	2131 E	2159 U	N05	W11	6249	28 D	1	2.31	2.31	2.31		17		
ONDREJOV	10	1204	1224	N17	E70	6250	20	3	1208			2.30			
MEUDON	10	1205	1220	N15	E80	6250	15								
CAPRI S	10	1205 E	1225 D	N15	E77	6250	20 D	3	1212	1.20	3.80				
SALTSJOBADN	10	1211 E	1217 D	N15	E78	6250	6 D	2	1212	1.00	3.00				
MEUDON	10	1219	1245 D	N13	E35	6247	26 D	1+			5.00				
MCWATH	10	1222	1327	N13	E36	6247	65	2	1234		3.00				
ONDREJOV	10	1223	1303 D	N11	E37	6247	40 D	3	1233		4.60	2.70			
CAPRI S	10	1223	1306 D	N13	E36	6247	43 D	3	1233	3.50	3.00				
SALTSJOBADN	10	1225 E	1306 D	N12	E35	6247	41 D	2	1234	2.50	3.00				
WENDEL	10	1227 E	1309	N12	E34	6247	42 D	2			8.00				
SAC PEAK	10	1756	1816	N13	E74	6250	20	3		1.86	3.69		17		
SAC PEAK	10	1756	1816	N13	E74	6250	20								
ONDREJOV	11	1003 E	1022	N12	E22	6247	19 D	3	1009			2.10			
KODAIKNL	12	0208 E	0213 D	S08	W04	6246	5 D	2	0208	1.10	1.10	1.20	114		
KODAIKNL	12	0208 E	0213 D	S08	W04	6247	4 D		0210			1.52			
WENDEL	12	1041 E	1045 D	N14	E08	6247	15 D				4.00				
WENDEL	12	1421 E	1436 D	S08	W10	6246	28	3		2.19	2.19		18		
SAC PEAK	12	2002	2030	N15	E04	6247	44 D				3.00				
WENDEL	13	1225	1309 D	N13	W05	6247	14 D				3.00				
WENDEL	14	0857 E	0911	N02	E01	6250	1								

SOLAR FLARES

OCTOBER 1961

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION			DURA TION — MINUTES	IM. POR- TANCE	OBS. COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT
		START	END	MAX. PHASE	APPROX LAT.	MER DIST				McMATH PLAGE REGION	TIME U T	MEAS. AREA Sq Deg	CORR. AREA Sq Deg	
WENDEL	14	1440 E	1454 D	N15 E24		6250	14 D 1				3.00			
	16	0659 E	0727 D	N21 E04		6250	28 D 1				3.00			
	16	1728	1831	N12 W50		6247	63 1	1	1738	6.66	2.10		24	
	16	1728	1846	N11 W30		6247	78 2	3			8.42			
WENDEL	17	1000 E	1030 D	S07 E61			30 D 1				4.00			
	17	1224	1242 D	S07 E60			18 D 1				4.00			
ISTANBUL	19	0750 E	0820	N18 E57		6257	30 D 1							
ISTANBUL WENDEL	20	0856	0915	S09 E52		6260	19 1+				3.00			
	20	0902 E	0918 D	S08 E48		6260	16 D 1							
WENDEL	27	0840 E	0854 D	N11 W08		6261	14 D 1				3.00			
MITAKA	29	0036	0046	N09 W35		6261	10 1	1	0038	1.01	1.26	1.96	96	

COMMERZ - STANDARDS - BOULDER

ATHENS	ATHENS, GREECE	HONOLULU	HAWAII, USA	NERA	NEDERHORST den BERGH.
BAKOU	PIRCULI, USSR	IKOMASAN	KYOTO, JAPAN		NETHERLANDS
CAPETOWN	ROYAL OBSERVATORY,	KIEV KO	KIEV CAO, USSR	NIZMIR	KRASNAYA PAKHRA, USSR
CAPRI F	CAPE OF GOOD HOPE	KIEV KY	KIEV UNIVERSITY, USSR	SAC PEAK	SACRAMENTO PEAK, N.MEX., USA
CAPRI S	CAPRI, ITALY (GERMAN)	LOCKHEED	LOS ANGELES, CALIF., USA	SALTSJOBADEN	STOCKHOLM, SWEDEN
CRIMEE	CAPRI, ITALY (SWEDISH)	MC MATH	MC MATH-HULBERT,	SCHAUTINS	SCHAUTINSLAND, GFR
HERSTHONCEU	SIMEIZ, USSR	MOSCOW	PONTIAC, MICH., USA	TACHKENT	TASHKENT, USSR
	ROYAL GREENWICH OBSERVATORY,		MOSCOW-GAISH, USSR	WENDEL	WENDELSTEIN, GFR
	HERSTHONCEUX, ENGLAND				

ALL VALUES IN THE MAXIMUM INTENSITY COLUMN FOR SAC PEAK ARE ARBITRARY UNITS (0-40) AND FOR LOCKHEED ARE ARBITRARY UNITS (10-40), NOT PERCENT OF CONTINUOUS SPECTRUM.

SEE DESCRIPTIVE TEXT PUBLISHED NOVEMBER 1960 FOR DEFINITION OF CORRECTED AREA VALUES LISTED FOR CLINAX, HAWAII, LOCKHEED AND SACRAMENTO PEAK.

E = LESS THAN D = GREATER THAN U = APPROXIMATE □ = NOT REPORTED.

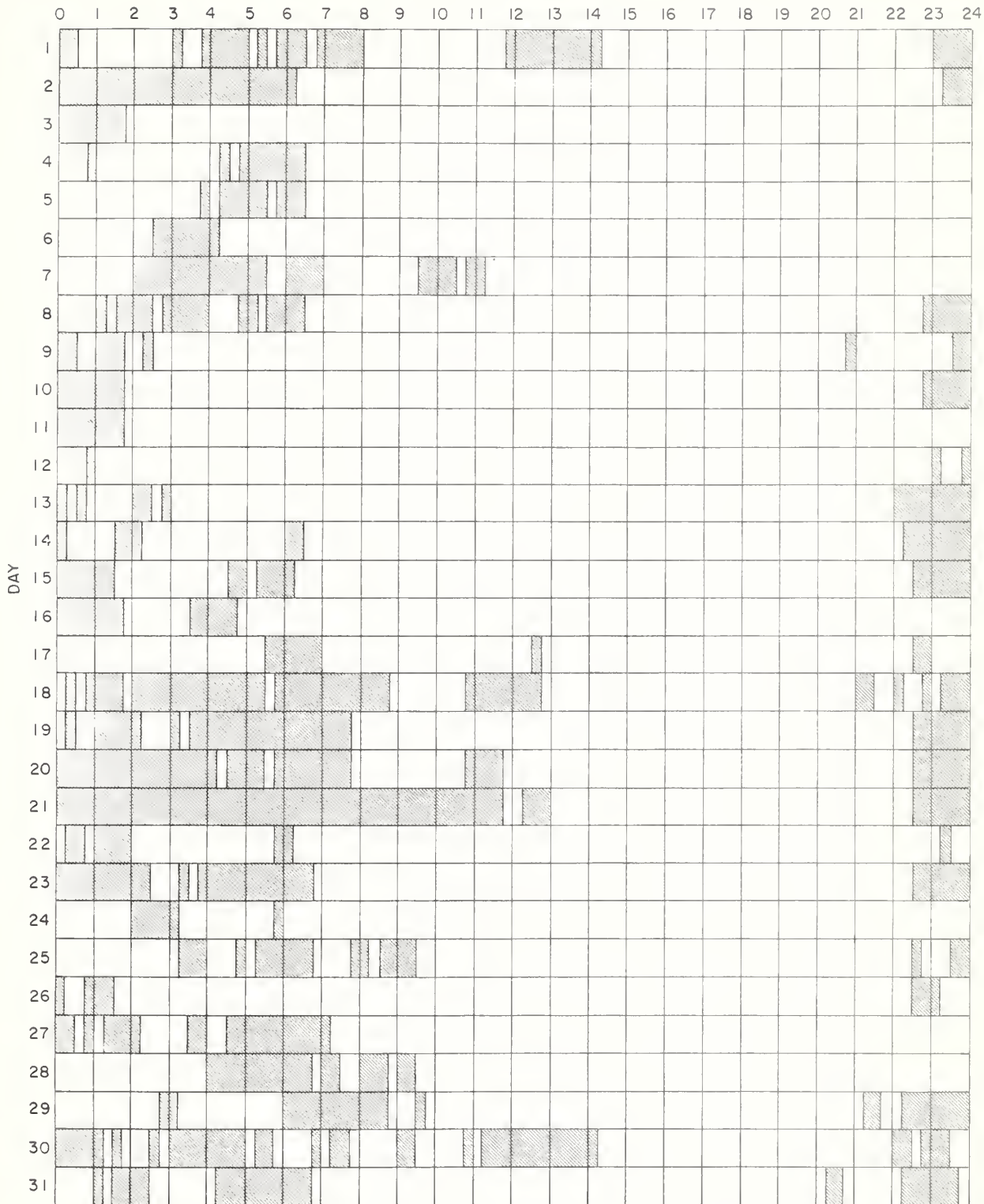
*Changed from reported W52 to E52 to agree with other reports.

INTERVALS OF NO FLARE PATROL OBSERVATIONS

IIIc

OCTOBER 1961

HOUR-UT



COMMERCE - STANDARDS - BOULDER 10/20/61 NBS B.

Stations Include:

Arcetri	Istanbul	Mitaka
Capri S	Lockheed	Ondrejov
Herstmonceux	Kodaikanal	Sacramento Peak
Honolulu	McMath	Wendelstein
Huancayo	Meudon	

SUBFLARES

Noted as follows: Date-Universal Time - Coordinates

SEPTEMBER 1961

LOCKHEED	01 0042	N13 E46	MCNATH	10 1434	S11 E40	LOCKHEED	19 0025	N18 W39
LOCKHEED	01 0055	N19 W16	WENDEL	10 1521 E	S12 E57	BUCHAREST	19 0107	N18 E37
KODAIKNL	01 0452	N12 E45	MCNATH	11 1454	N18 W20	UCCLF	19 1053	N13 W55
WENDEL	01 0614 E	N11 E38	LOCKHEED	11 2022	S13 E42	MCNATH	19 1447	N15 W48
WENDEL	01 0628 E	N12 E36	LOCKHEED	11 2334	S13 E42	LOCKHEED	20 0014	N12 E28
ONDREJOV	01 0736	N13 E42	UCCLF	12 1203	N10 E41	LOCKHEED	20 0032	N14 W57
UCCLF	01 0944	N10 E37	HONOLULU	12 1810	S13 E39	* MEUDON	20 1020	N14 W62
UCCLF	01 0959	N10 E37	LOCKHEED	12 1822	S12 E29	* SALTSMOBBON	20 1021 E	N12 W40
UCCLF	01 1032	N10 E33	HONOLULU	12 2009	S12 E38	ONDREJOV	20 1459 E	N06 E37
UCCLF	01 1034	N10 E37	LOCKHEED	12 2016	S13 E37	CAPRI S	21 1213 E	N08 W37
UCCLF	01 1151	N12 E34	LOCKHEED	12 2030	S09 E21	UCCLF	21 1435	N17 W13
UCCLF	01 1232	N10 E37	LOCKHEED	12 2216	N14 E42	WENDEL	22 0707 E	N07 E15
UCCLF	01 1236	N10 E40	LOCKHEED	12 2305	N14 E43	WENDEL	22 1129 E	N08 E15
ONDREJOV	01 1237 E	N12 E34	LOCKHEED	12 2345	N18 E41	MCNATH	22 1947	N07 E11
UCCLF	01 1313	N20 W87	BUCHAREST	13 0710 E	N14 W37	SAC PEAK	22 2052	N06 E08
SAC PEAK	01 1340	N11 E34	BUCHAREST	13 0730	S09 E18	MCNATH	22 2100 E	N06 E08
UCCLF	01 1341	N09 E34	WENDEL	13 0906	N15 E18	ONDREJOV	23 0600 E	N02 E70
CAPRI S	01 1341	N10 E35	CAPRI S	13 0926 E	S13 E12	* MEUDON	23 0635	N06 W00
WENDEL	01 1345 E	N10 E32	WENDEL	13 1022 E	S11 E17	MEUDON	23 0715	N15 W25
UCCLF	01 1409	N10 E39	MEUDON	13 1110	N14 E35	WENDEL	23 0738 E	N07 E05
SAC PEAK	01 1412	N12 E35	UCCLF	13 1117	N20 E01	WENDEL	23 0752 E	N07 E05
UCCLF	01 1413	N10 E35	WENDEL	13 1119 E	N19 W01	WENDEL	23 1416 E	N07 E00
ONDREJOV	01 1414 E	N12 E33	CAPRI S	13 1129	N16 E35	WENDEL	23 1555 E	N08 E15
UCCLF	01 1420	N13 E40	WENDEL	13 1155 E	N10 E01	WENDEL	23 1501 E	N07 E01
UCCLF	01 1424	N10 E35	WENDEL	13 1217 E	S12 E17	WENDEL	23 1544 E	N02 E70
WENDEL	01 1425 E	N12 E34	WENDEL	13 1220 E	S14 E08	LOCKHEED	23 1743	N11 E90
UCCLF	01 1505	N18 W01	MCNATH	13 1354	N09 E02	LOCKHEED	23 2048	N01 E72
UCCLF	01 1541	N11 E37	MCNATH	13 1430	N13 E30	LOCKHEED	23 2120	N07 W04
LOCKHEED	01 1702	N12 E30	MCNATH	13 1433	S15 E11	LOCKHEED	23 2304	N03 E68
MCNATH	01 2147 E	N12 E35	WENDEL	13 1524 E	N14 E33	BUCHAREST	24 0735	N22 W30
KODAIKNL	02 0728	N12 E28	WENDEL	13 1613 E	S13 E12	WENDEL	24 1232 E	N02 E58
MEUDON	02 0817	N13 E22	LOCKHEED	13 1709	S09 E17	WENDEL	24 1236 E	N02 E61
UCCLF	02 0847	N19 E21	LOCKHEED	13 1749	S19 E17	WENDEL	24 1406 E	N10 E75
SAC PEAK	02 1410	N14 E19	LOCKHEED	13 1925	S08 E10	WENDEL	24 1329 E	N07 W14
CAPRI S	02 1410 E	N13 E21	MCNATH	13 1932 E	S08 E11	WENDEL	24 1338 E	N02 E60
ONDREJOV	02 1835	N13 E21	LOCKHEED	13 2041	S09 E13	WENDEL	24 1414 E	N07 W14
LOCKHEED	02 1905	N12 E15	HONOLULU	13 2122	N14 E31	MCNATH	24 1508 E	N01 E75
HONOLULU	02 1914 E	N25 E01	LOCKHEED	13 2123	S13 E04	SAC PEAK	24 1630	N01 E57
LOCKHEED	02 1932	N13 E21	LOCKHEED	13 2135	S05 E11	SAC PEAK	24 1726	N07 W19
LOCKHEED	02 2052	N14 E15	LOCKHEED	13 2247	S08 E09	LOCKHEED	24 1708	N08 W27
HONOLULU	02 2104 E	N11 E66	LOCKHEED	14 0002	N13 E28	SAC PEAK	24 1800	N02 E62
LOCKHEED	02 2147	N14 E15	HONOLULU	14 0006	N14 E30	LOCKHEED	24 1800	N03 E58
HONOLULU	02 2236	N08 E30	KODAIKNL	14 0215	S02 E12	LOCKHEED	24 1920	N07 W19
LOCKHEED	03 0110	N14 E18	BUCHAREST	14 0735	N20 W04	SAC PEAK	24 1920	N07 W24
KODAIKNL	03 0222	N12 E15	WENDEL	14 0749	N14 E25	LOCKHEED	24 2046	N07 W20
KODAIKNL	03 0435 E	N12 E11	ARCETRI	14 0920 E	S10 E08	LOCKHEED	24 2309	N07 W21
CAPRI S	03 0600 E	N12 E14	WENDEL	14 1033	S11 W04	HONOLULU	24 2310	N08 W21
MEUDON	03 0710	N14 E08	WENDEL	14 1134 E	N14 E21	LOCKHEED	24 2310	N08 E74
ONDREJOV	03 0923	N11 E39	UCCLF	14 1449	S13 W07	CAPRI S	25 0716 E	N07 W24
MCNATH	03 1430	N10 E86	LOCKHEED	14 1806	N17 E18	ONDREJOV	25 0816 E	N07 W27
MCNATH	03 1450	N07 E11	LOCKHEED	14 1814	S09 E00	ONDREJOV	25 1005 E	N08 W27
LOCKHEED	03 1809	N09 E03	LOCKHEED	14 1927	N17 E16	WENDEL	25 1355 E	N09 E70
LOCKHEED	03 1824	N10 E03	LOCKHEED	14 1928	N17 E16	WENDEL	25 1555 E	N09 E70
LOCKHEED	03 1709	N13 E03	HONOLULU	14 1932 E	N16 E19	UCCLF	25 1613	N15 E80
HONOLULU	03 2028 E	N08 E79	HONOLULU	14 1936	N07 E20	UCCLF	25 1415	N18 E84
HONOLULU	03 2352	N14 E08	LOCKHEED	14 1944	N15 E90	WENDEL	25 1422 E	N18 E78
BUCHAREST	04 0655 E	N13 E03	LOCKHEED	14 1953	S13 W06	UCCLF	25 1740	N08 W30
CAPRI S	04 0727	N10 W05	LOCKHEED	14 2145	N13 W33	LOCKHEED	25 1740	N09 E68
MEUDON	04 0736 E	N12 W03	LOCKHEED	14 2150	N16 E17	LOCKHEED	25 1838	N08 W33
UCCLF	04 1015 E	N13 W03	LOCKHEED	14 2247	N09 W36	BUCHAREST	26 0700 E	N06 W38
KODAIKNL	04 1025	N11 W04	LOCKHEED	14 2252	N16 E18	* WENDEL	26 0705 E	N10 E61
WENDEL	04 1128 E	N10 E75	HONOLULU	14 2254	N18 E14	ARCETRI	26 0857	N13 E87
WENDEL	04 1435 E	N10 E73	HONOLULU	14 2254	N10 W33	* UCCLF	26 1016	N07 E65
WENDEL	04 1538 E	N11 E11	SAC PEAK	14 2322 F	N18 E18	* UCCLF	26 1020	N08 E66
LOCKHEED	04 1646	N09 E07	LOCKHEED	15 0018	N14 E15	* WENDEL	26 1020	N08 E66
SAC PEAK	04 1807	N12 W06	UCCLF	15 0035	N13 E14	* UCCLF	26 1020	N08 E66
LOCKHEED	04 1808	N12 W06	CAPRI S	15 0735 E	S07 W08	LOCKHEED	26 2010	N12 E57
SAC PEAK	04 1835	N13 W06	BUCHAREST	15 0757 E	N14 E13	LOCKHEED	26 2305	N10 E52
MCNATH	04 1849 E	N12 W06	UCCLF	15 1036	N12 W39	LOCKHEED	26 2332	N04 W90
SAC PEAK	04 1856	N10 W05	UCCLF	15 1048	N12 W39	LOCKHEED	27 0005	N09 E57
SAC PEAK	04 2148	N13 W15	UCCLF	15 1105	S08 W18	WENDEL	27 1134 E	N14 E63
SAC PEAK	04 2158	N12 W10	UCCLF	15 1114	N12 W42	* UCCLF	27 1155 E	N13 E42
ONDREJOV	05 0823 E	N14 W21	MCNATH	15 1222	S11 W13	WENDEL	27 1213	N13 E45
UCCLF	05 0829	N11 W20	CAPRI S	15 1458	S10 W10	MCNATH	27 1216	N06 W62
BUCHAREST	05 0931 E	N11 W17	MCNATH	15 1458	S10 W10	WENDEL	27 1255 E	N09 E43
ONDREJOV	05 0935 E	N10 W19	MCNATH	15 1742	N07 W42	UCCLF	27 1345 E	N13 E45
BUCHAREST	05 0937	N14 W21	MCNATH	15 1944	N08 E87	MCNATH	27 1440	N12 E64
UCCLF	05 0854	N11 W18	MCNATH	15 1944	N08 E87	MCNATH	27 1448	N12 E66
BUCHAREST	05 0855	N11 W17	LOCKHEED	15 2137	S13 W20	MCNATH	27 1527	N14 E63
UCCLF	05 1241	N15 W15	MCNATH	15 2144	N13 E85	MCNATH	27 1606	N12 E43
SAC PEAK	05 1414	N11 W23	HONOLULU	15 2146	N12 E90	MCNATH	27 1615	N14 E63
ONDREJOV	05 1425 E	N11 W25	SAC PEAK	15 2148 E	N13 E84	MCNATH	27 1637	N11 E76
HERSTHONGEV	05 1437	N11 W20	HONOLULU	16 0054 E	N14 E04	MCNATH	27 1754	N13 E75
MCNATH	05 1527 E	N14 W17	WENDEL	16 0748 E	N16 W03	SAC PEAK	27 1800	N13 E60
LOCKHEED	05 1555	N13 W17	WENDEL	16 0818 E	N11 W04	MCNATH	27 1803	N13 E62
LOCKHEED	05 1812	N12 W17	WENDEL	16 0926 E	S10 W27	MCNATH	27 1909 E	N11 E43
HONOLULU	05 1816 E	S15 W07	MCNATH	16 1212 E	N10 W88	HONOLULU	27 1916	N11 E60
SAC PEAK	05 1817	N11 W28	MCNATH	16 1252	N09 W58	HONOLULU	27 1952	N14 E76
LOCKHEED	05 1845	N13 W27	MCNATH	16 1310	N10 W88	CAPRI S	28 0915 E	N13 E65
LOCKHEED	05 2010	N13 W30	MCNATH	16 1356	N11 W10	UCCLF	28 0916	N11 E65
LOCKHEED	05 2115	N12 W23	MCNATH	16 1530	N15 E75	ONDREJOV	28 0947 E	N14 E62
BUCHAREST	06 0755	N18 W23	MCNATH	16 1613	S15 W30	UCCLF	28 1014	N11 E65
BUCHAREST	06 1547	N16 W31	MCNATH	16 2006	S11 W25	UCCLF	28 1023	N10 E32
LOCKHEED	06 1952	N06 E70	MCNATH	16 2044	S09 W29	CAPRI S	28 1023 E	N12 E32
CAPRI S	07 0614 E	N12 W42	MCNATH	16 2118	N12 W15	MCNATH	28 1520	N13 E34
UCCLF	07 1018 E	N11 W48	KODAIKNL	16 2146	N13 W15	CAPRI S	28 1524	N13 E31
UCCLF	07 1035	N15 W54	MEUDON	17 0243	S10 W38	LOCKHEED	28 1720	N13 E31
LOCKHEED	07 1652	N12 W56	KODAIKNL	17 0922	S11 W41	MCNATH	28 2104	N14 E29
LOCKHEED	07 1816	N12 W57	MEUDON	17 0924	N21 W42	MCNATH	28 2105	N13 E30
HONOLULU	07 1816 E	N15 W58	ARCETRI	17 0925	S11 W39	LOCKHEED	28 2305	N08 W37
MCNATH	07 2141	S10 E90	KODAIKNL	17 0930 E	N19 W46	WENDEL	29 0852 E	N17 E46
ARCETRI	08 0917 E	S10 E90	ONDREJOV	17 0930	N20 W45	CAPRI S	29 1132 E	N13 E41
MCNATH	08 1208 E	N18 E22	CAPRI S	17 0930 E	N25 W41	ONDREJOV	29 1132 E	N13 E41
CAPRI S	08 1330	N12 W56	UCCLF	17 0938 E	N21 W48	CAPRI S	29 1149 E	N03 W90
MCNATH	08 1332	N10 W50	MCNATH	17 1307 E	S11 W42	MCNATH	29 1213 E	N13 E43
MEUDON	08 1332	N13 W63	MCNATH	17 1703	N13 W27	CAPRI S	29 1415 E	N13 E39
MCNATH	08 1630	N11 W01	MCNATH	17 1727	S12 W47	CAPRI S	29 1415 E	N13 E39
MCNATH	08 1642	N18 E00	MCNATH	17 1751	N13 W27	MCNATH	29 1415 E	N13 E39
MEUDON	08 1650	S10 E27	HONOLULU	17 1756 E	N14 W26	SAC PEAK	29 1417 E	N14 E37
HONOLULU	08 1948	N12 W63	HONOLULU	18 0028	N13 E52	LOCKHEED	29 1800	N02 W14
LOCKHEED	08 2140	S10 E79	ONDREJOV	18 0848 E	N21 W61	LOCKHEED	29 1906	N13 E18
LOCKHEED	08 2201	N12 W62	MCNATH	18 1213 E	S06 W80	CAPRI S	30 1230 E	N14 E29
LOCKHEED	08 2208	S10 E79	MCNATH	18 1245	N18 W33	SAC PEAK	30 1423 E	N14 E28
LOCKHEED	08 2320	S10 E79	ONDREJOV	18 1347 E	S12 W55	CAPRI S	30 1746	N16 E90
ISTANBUL	09 0800 E	S13 W72	CAPRI S	18 1347 E	S12 W55	LOCKHEED	30 2305	N03 W30
UCCLF	09 0914	S12 E78	WENDEL	18 1447 E	S13 W59	LOCKHEED	30 2335	N01 W30
UCCLF	09 0923	S10 W53	MCNATH	18 1448	N15 E42	LOCKHEED		
UCCLF	09 1010	N18 E88	LOCKHEED	18 1842	N20 E41			
UCCLF	09 1042	N12 E85	LOCKHEED	18 1847	N11 W80			
UCCLF	09 1139	N19 W67	LOCKHEED	18 2042	S13 W59			
CAPRI S	09 1147 E	N17 W69	MCNATH	18 2043	S12 E42			
MCNATH	09 1150 E	N18 W67	HONOLULU	18 2046 E	S11 W61			
MCNATH	09 1205	N11 E87						
MCNATH	09 1803	N19 E88						

SOLAR FLARES

JULY 1961

OBSERVATORY	DATE JULY 1961	OBSERVED UNIVERSAL TIME		LOCATION			DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT	
		START	END	MAX. PHASE	APPROX.					McMATH PLACE REGION	TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.		MAX. WIDTH H _o
					LAT.	MER. DIST.									
CAPRI G	01	0812	0840	N06	W38	6155	28	1	2			4.00			
CAPRI G	02	1130	1145	N07	W53	6155	15	1	2			4.00			
CAPRI G	06	0635	E 0651	N12	E08	6164	16 D	1	2			4.00			
MEUDON	07	0920	1020	S05	E20	6165	60	1				3.00			
	07	0926	0945 D	S04	E20	6165	19 D	1+	2			5.00			
SCHAUINS	07	0949	E 1015 D	S02	E17	6165	26 D	1	2		3.00	3.00	1.90		
MEUDON	07	1330	1400	N04	W03	6164	30	1							
GOOD HOPE	07	1334	E 1355 D	N12	W10	6164	21 D	1		1336	2.20	2.30			
	07	1345	E 1355	N11	W10	6164	10 D	1	2			4.00			
SCHAUINS	08	1058	E 1114	N16	W79	6167	16 D	1	2	1100		4.00	1.60		
GOOD HOPE	08	1059	1127	N07	E81	6170	28	1		1102	.60				
CAPRI G	08	1312	E 1335	N15	W25	6164	23 D	1	2			4.00			
GOOD HOPE	09	1026	1054	N05	E42	6166	28	1		1032	2.20	2.90			
	09	1030	E 1042	N02	E45	6166	12 D	1+	2			6.00			
CAPRI G	09	1449	E 1456	N16	W35	6164	7 D	1	2			4.00			
MITAKA	10	0612	E 0627	S08	E56	6171	15 D	1	1	0614	1.54	2.74			
GOOD HOPE	10	1312	1338	S08	E51	6171	26	1		1314	1.80	3.10	3.26	118	
CAPRI G	10	1312	E 1500 D	S08	E48	6171	108 D	1	2			5.00			
SCHAUINS	10	1440	E 1440 D	S07	E49	6171			1						
SCHAUINS	10	1554	E 1625 D	S08	E50	6171	31 D	1	2			3.00	1.20		
OTTAWA	11	1133	1155	N14	W74	6164	22	1			1.20	2.30			
GOOD HOPE	11	1134	1155	N16	W70	6164	21	1		1138	1.10	3.10			
MEUDON	11	1330	1345	S08	E35	6171	15	1				3.00			
OTTAWA	11	1331	1415	S04	E33	6171	44	1			3.10	3.40			
CAPRI G	11	1341	E 1455	S07	E35	6171	74 D	1	2			4.00			
CAPRI G	12	0740	E 0742	S07	E25	6171	2 D	1	2			4.00			
SCHAUINS	12	0742	E 0800	S05	E21	6171	18 D	1	2	0742		2.00	2.60		
SCHAUINS	12	0919	E 0930	S07	E23	6171	11 D	1	2			3.00			
MEUDON	12	0950	1200	S08	E20	6171	130	3				20.00			
GOOD HOPE	12	1001	1220	S07	E24	6171	139	3		1030	14.30	16.00			
SCHAUINS	12	1005	1157	S08	E23	6171	112	3	2	1025		15.00	8.20		
CAPRI G	12	1026	E 1140	S08	E20	6171	74 D	3	2			20.00			
OTTAWA	12	1103	E 1226 D	S07	E22	6171	63 D	2		1103	11.20	11.20			
CAPRI G	13	0909	E 0950 D	S08	E10	6171	41 D	1	2			4.00			
MITAKA	14	0252	E 0316	S05	W02	6171	24 D	1	1	0254	.82	.82	2.27	125	
GOOD HOPE	14	1019	E 1040	S03	W07	6171	21 D	1		1019	2.70	2.70			
MITAKA	15	0051	0131	S09	W06	6171	40	1	2	0104	1.03	1.34	2.17	98	
MITAKA	15	0649	0703	S05	W17	6171	14	1	1	0659	1.23	1.60	2.59	120	
MITAKA	15	0655	0700	S08	W15	6171	5	1	1	0657	1.23	1.60	1.75	120	
GOOD HOPE	15	1121	E 1157	S07	W21	6171	36 D	1		1133	2.70	2.90			

OBSERVATORY	DATE JULY 1961	OBSERVED UNIVERSAL TIME		LOCATION		DURA- TION — MINUTES	IM POR- TANCE	OBS COND.	MEASUREMENTS			MAX INT °	PROVISIONAL IONOSPHERIC EFFECT
		START	END	APPROX LAT	MER DIST	M-WAVE REGION			TIME UT	MEAS AREA Sq Deg	COBB AREA Sq Deg	WIDTH H _g	
MEUDON CAPRI G	15	1505 E		N13 E16		6172	1				10.00		S-SWF
	15	1521	1640 D	N12 E15		6172	2+	2			4.00		
	15	1620	1635	S08 E55		6174	15	2					
GOOD HOPE GOOD HOPE GOOD HOPE	16	0757	0814	S04 W31		6171	1		0806	2.30	2.70		S-SWF
	16	1107	1124	S04 W31		6171	1		1110	1.80	2.10		
	16	1258	1316	S05 W34		6171	1		1300	4.10	5.00		
KYOTO MITAKA CAPRI G	17	0215 E	0238 D	S18 W38		6171	1		0219	4.54	3.65	1.77	S-SWF
	17	0301	0329	S05 W43		6171	1+	1	0312	2.57	3.00	1.96	
	17	0643 E	0720 D	N10 W10		6172	37 D	2					
MEUDON CAPRI G	17	0710	0830	S05 W45		6171	80	1+					Slow S-SWF S-SWF
	17	1325 E	1342 D	S08 W43		6171	17 D	2		5.00	8.00		
	17	1611 E	1630 D	N09 E40		6175	19 D	2					
MEUDON GOOD HOPE CAPRI G	18	0800	0815	S05 W60		6171	15	1+		5.00	8.00		S-SWF
	18	0804	0839	S05 W60		6171	35	2	0811	4.10	4.00		
	18	0825 E	0845 D	S07 W57		6171	20 D	2					
GOOD HOPE CAPRI G	18	0911 E	0916 D	S04 W59		6171	5 D	2					S-SWF
	18	0920	1250	S05 W61		6171	210	3+	1005	12.80	25.60		
	18	0926	1145	S06 W58		6171	139	3			20.00		
MEUDON GOOD HOPE	18	0930	1100	S08 W60		6171	90	2+	1308	1.60	3.20		Slow S-SWF
	18	1305	1336	S06 W60		6171	31	1			4.00		
	18	1311 E	1332	S05 W55		6171	21 D	1					
OTTAWA GOOD HOPE GOOD HOPE	18	1612	1629	S02 W64		6171	17	1		2.80	4.50		S-SWF
	19	0749	0810	N08 E87		6178	21	1	0801	.40			
	19	1024	1032	S06 W68		6171	8	1	1026	1.00	2.70		
OTTAWA SCHAUMS	19	1348	1400 D	S08 W78		6171	12 D		1353	.50			S-SWF
	19	1443	1502	S12 W82		6171	19	1		1.50	3.00		
	19	1451	1507	N05 E80		6178	16	1		.60	1.40		
GOOD HOPE CAPRI G	20	0718 E	0736	S10 W88		6171	18 D	1	0722	.80			S-SWF
	20	0854 E	0903 D	S10 W90		6171	9 D	2			4.00		
	20	1212	1230	S12 W90		6171	18	1		.50	2.40		
OTTAWA SCHAUMS	20	1524	1602 D	S07 W90		6171	38 D	1		.70	3.50		Slow S-SWF
	20	1528 E	1635	S08 W90		6171	67 D	1					
	20	1645 E	1715 D	S05 W90		6171	30 D	2					
CAPRI G	22	1355 E	1413	N13 W27		6175	18 D	1			4.00		S-SWF
	23	1203 E	1213 D	N02 W04		6176	10 D	1			4.00		
	24	0118 E	0126 D	N08 E24		6178	8 D	1	0118	2.88	3.11	2.49	
MITAKA MITAKA	24	0403 E	0449 D	N12 E15		6178	46 D	1	0411	2.06	2.16	2.27	Slow S-SWF
	24	0421 E	0449 D	N05 E17		6178	28 D	1	0425	1.03	1.09	1.84	
	24	0457	0523 D	N10 E17		6178	26 D	1+	0500	1.03	1.09	2.38	
MITAKA SCHAUMS	24	0507	0523 D	N09 E11		6178	16 D	1		1.03	1.06		Slow S-SWF
	24	0449 E	0537 D	N17 E19		6179	48 D	2+	0504	10.28	11.10	2.71	
	24	0520 E	0620 D	N15 E20		6179	60 D	2	0533		18.00	2.20	
CAPRI G SCHAUMS	24	0533 E	0610	N11 E28		6179	37 D	2		4.00	8.00		S-SWF
	24	0900 E	0950 D	N09 E13		6178	50 D	1			4.00	2.00	
	24	0905 E	1030 D	N07 E11		6178	85 D	2			4.00		

SOLAR FLARES

JULY 1961

OBSERVATORY	DATE JULY 1961	OBSERVED UNIVERSAL TIME		LOCATION			IM- POR- TANCE	OBS. COND.	MEASUREMENTS			PROVISIONAL IONOSPHERIC EFFECT
		START	END	APPROX.	MATH PLACE REGION	DURA- TION — MINUTES			TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	
CAPRI G	24	1435 E	1448 D	N00 W22	6176	13 D	1	2			4.00	
CAPRI G	24	1645 E	1656 D	N01 W23	6176	11 D	1	2			3.00	
MITAKA	25	0520	0528	N07 W02	6178	8 D	1	1	0523	1.03	1.03	96
CAPRI G	25	1103 E	1115	N01 E64	6181	12 D	1	2			3.00	
MEUDON	25	1223	1255	N07 E03	6178	32	1	2			3.00	
CAPRI G	25	1224 E	1237	N07 W04	6178	7 D	1	2			3.00	
MEUDON	25	1359	1410	N07 E03	6178	11	1		2240	7.22	3.00	
KYOTO	25	2230 E	2252 D	N08 W12	6178	22 D	1				1.46	100
MITAKA	27	0432	0450	N10 W83	6175	18	1	1	0433	.82		120
MITAKA	27	0630 E	0652	N03 W27	6178	22 D	1	1	0637	4.11	4.85	115
KYOTO	27	0632	0651 D	N07 W25	6178	19 D	1		0632	5.78		120
CAPRI G	27	0640 E	0700 D	N06 W25	6178	20 D	1	3	0644		3.00	
MITAKA	27	0744	0800 D	N08 W81	6175	16 D	1		0749	.82		107
CAPRI G	27	0822 E	0838	N09 W83	6175	16 D	1	3	0830		5.00	
GOOD HOPE	27	0908	1050	N09 W84	6175	102	2		0912	1.60		
CAPRI G	27	1128 E	1305 D	N11 W82	6175	97 D	2	3	1130		8.00	
GOOD HOPE	27	1135	1233	N09 W88	6175	58	1+		1152	.90		
MITAKA	28	0157 E	0229 D	N07 W90	6175	32 D	1	1	0205	1.03		165
KYOTO	28	0240	0320 D	N10 W37	6178	40 D	2		0240	12.99		120
MITAKA	28	0244 E	0418 D	N12 W37	6178	94 D	2+	1	0257	8.22	10.52	278
CAPRI G	28	0820 E	0845 D	N11 W90	6175	25 D	1	3				
CAPRI G	28	1650 E	1700 D	N11 W44	6178	10 D	2	2	1653		12.00	
MITAKA	29	0508	0516	N08 W50	6178	8	1	1	0510	.82		120
CAPRI G	29	1439 E	1602 D	N23 W50	6179	83 D	1	3	1442		4.00	
CAPRI G	29	1515 E	1550 D	N10 W59	6178	35 D	1	2	1535		5.00	
MEUDON	29	1640	1700	N09 W53	6178	20	1				4.00	
CAPRI G	29	1645	1701 D	N10 W58	6178	16 D	2	2	1648		9.00	
MITAKA	30	0618 E	0653 D	N05 W66	6178	35 D	1	3	0618	2.06	4.28	1.43
MITAKA	30	0618 E	0653 D	N10 W66	6178	35 D	1	3	0639	3.08	6.41	1.65
CAPRI G	30	0637 E	0648	N10 W65	6178	11 D	1	3	0638		2.00	
CAPRI G	30	1502 E	1517 D	S21 E46	6187	15 D	2	3	1505		5.00	

COMMERCE - STANDARDS - BOULDER

E = LESS THAN
D = GREATER THAN
U = APPROXIMATE
□ = NOT REPORTED

CAPRI G ANACAPRI - GERMAN
CAPRI S ANACAPRI - SWEDISH
GOOD HOPE ROYAL OBSERVATORY, CAPE OF GOOD HOPE
KIEV* KIEV UNIVERSITY
KODAIKANAL KODAIKANAL
KRASNAYA KRAKRA KRAVNAYA PAKHRA
LOCKHEED LOS ANGELES

MC MATH MCMATH-HULBERT
MOSCOW - GAISH MOSCOW - GAISH
R O HERST ROYAL GREENWICH OBSERVATORY.
HERSTMONCEUX
SAC PEAK SACRAMENTO PEAK
SCHAUTINS SCHAUTINS
WENDEL WENDELSTEIN

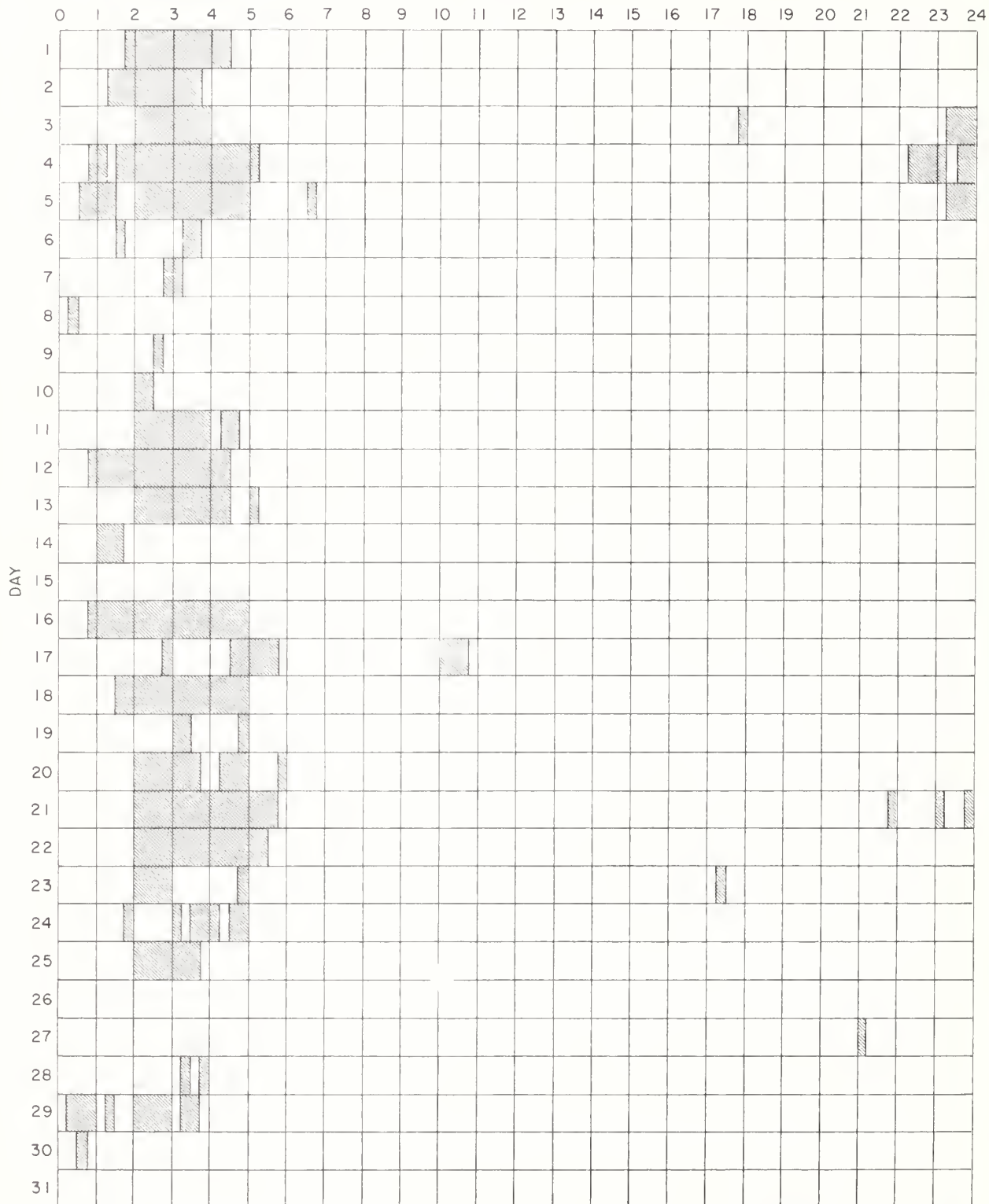
ALL VALUES IN THE MAXIMUM INTENSITY COLUMN FOR SAC PEAK ARE ARBITRARY UNITS (0-40) AND FOR LOCKHEED ARE ARBITRARY UNITS (10-40).
NOT PERCENT OF CONTINUOUS SPECTRUM.

SEE DESCRIPTIVE TEXT PUBLISHED NOVEMBER 1960 FOR DEFINITION OF CORRECTED AREA VALUES LISTED FOR CLIMAX, HAWAII, LOCKHEED AND SACRAMENTO PEAK.

INTERVALS OF NO FLARE PATROL OBSERVATIONS

JULY 1961

HOUR-UT



COMMERCE - STANDARDS - BOULDER

Stations Include:

Arcetri	Climax	Ikomasan	Mitaka	Uccle
Bucharest	Herstmonceux	Lockheed	Ondrejov	Wendelstein
Capetown	Honolulu	McMath	Ottawa	
Capri S	Huancayo	Meudon	Sacramento Peak	

SHORT WAVE RADIO FADEOUTS
SUDDEN COSMIC NOISE ABSORPTION
SUDDEN ENHANCEMENTS OF ATMOSPHERICS
SUDDEN PHASE ANOMALIES
SOLAR NOISE BURSTS AT 18 Mc

IIIi

SEPTEMBER 1961

SEPTEMBER 1961	UNIVERSAL TIME			SWF TYPE	IMPORTANCE					WIDE SPREAD INDEX	STATIONS	KNOWN FLARE
	START	END	MAX		IMP	ABS	SCNA	SEA	SPA	BUR		
01	2159	2202								1	5 BO HA	
02	0128	0210	0138						30		BO+	
02	0323	0405	0325			15	1				1 HA	0323
02	0324	0402	0340					1			5 HA A11 HO	
02	0608	0654		SL 1+							1 OK	0600
02	0616	0642	0625					1			1 A11	
* 02	1347	1445	1358					1			3 A5 A1 A3	1330
02	1352	1414		SL 1							4 PR MC	
02	1412	1415								1	1 RE	
02	1416	1419								1-	1 RE	
02	1433	1437								1+	1 RE	
02	1529	1548U	1535					1-			3 A5 A1	
* 02	1638	1715U	1647					2			3 A5 A1 A3	1638U
02	1646	1658	1651			10	1				BO	
02	2032	2033								1	5 BO HA	
02	2201	2205								1	5 BO HA	
02	2238	2241								1	5 BO HA	2230
02	2258	2300								1	5 BO HA	
03	2021	2026								1	5 BO HA	2015
03	2043	2115		S 1+							5 MC AD AN FM PR WS	2040
03	2044	2103	2051			35	2				5 HA BO RE	
03	2044	2140	2050						51		BO	
* 03	2045	2053						2+			5 HA A3 A6 A9 BO	
03	2235	2310	2246					1			5 A9 A6 A11	
04	0727	0748		S 1+							5 OK DA NE	0726
04	0730	0757	0736					1			5 TY NE	
04	1429	1510U	1439						26		BO	
04	1430	1500		S 1+							5 MC BE FM NE PR	1428
04	1433	1449	1437			10	1				5 BO RE	
* 04	1433	1458						1			5 NE A3 A5 PA	
04	1510	1600	1518						39		BO	
04	1512	1542	1518			30	1+				4 RE BO	1512
* 04	1514	1534						1			5 PA A3 A5	
04	1515	1540		S 1+							5 MC FM PR WS	
04	1833	1910U	1840						26		BO	
04	1910	2040	1915						58		BO	
04	1913	1940		S 1+							5 MC AD AN BE FM LA PR WS	1834
04	1914	1950	1919			30	2				5 BO HA RE	
* 05	1418	1600	1441					1			5 DU A5	1415
05	1430	1450		S 1							5 MC BE JU PR	
05	1640	1730		SL 2+							5 MC BE FM HU PR	1646
05	1649		1650						32		BO	
* 05	1653	1730	1702					2			1 A5	
05	1846	1848								1	5 BO HA RE	
06	1820	2250								2	5 BO HA (Noise Storm)	
07	1622	1635		S 1-							5 MC BE PR	
* 08	1552	1640	1614					2			5 BO A3 A5 A7 NE PA	1545
08	1552	1705		SL 2+							5 PR BE BO FM HU MC NE PU WS	
08	1553	1633							X		KU	
08	1558	1624	1605			30	2				5 BO RE	
* 10	1940	2125U	2003					2			5 A5 A3 A9 BO HA	1950
10	1942	2123		SL 3							5 PR AD AN BE BO FM HU MC WS	
10	1943	2115	1959			59	2				5 RE BO HA	
10	1951	2025								3	5 BO HA RE	
14	1814	1816								1	5 BO RE	
15	0025	0128		SL 2+							5 OK AD TO	0031
15	0034	0116	0045			25	1				1 HA	
15	0040	0123	0055					1			1 HA	
15	0044	0046								1	1 HA	
16	1102	1152		S 2							4 NE SW	1057
16	2328	0015	2335					2			1 A11	
25	0305	0355		S 2				1			4 OK TO	0301E
25	0307	0342	0316								1 TY	
25	1927	1930								1	5 BO HA RE	
25	2350	2400								1	1 HA	
27	1218	1220								1-	1 RE	1214E
27	1950	2045						2			3 A5 A3	
27	1955	2015		S 1							5 MC BE HU PR	1950
28	0005	0013								2	1 HA	*
28	0137	0143								1	1 HA	
28	2211	2300D	2228						30		BO	
28	2214	2308									5 BO HA (Group)	2202
* 28	2216	2258	2224					2			5 TY BO CA HA HO TO	
28	2218	2320		S 2							5 AN AD BO HU MC PR TO WS	

Notes: 1. DA = Darmstadt, GFR; LA = Los Angeles, Calif.
2. In SPA column BO+ denotes recording GBR (16 kc) and BO denotes recording NBA (18 kc).

COMMERCE - STANDARDS - BOULDER

REVISED

TO REPLACE JULY 1961 DATA PUBLISHED IN CRPL-205 B
PAGES III j, III k

IONOSPHERIC EFFECTS OF SOLAR FLARES

SHORT WAVE RADIO FADEOUTS
SUDDEN COSMIC NOISE ABSORPTION
SUDDEN ENHANCEMENTS OF ATMOSPHERICS
SUDDEN PHASE ANOMALIES
SOLAR NOISE BURSTS AT 18 Mc

JULY 1961

JULY 1961	UNIVERSAL TIME			SWF TYPE	IMPORTANCE				WIDE SPREAD INDEX	STATIONS	KNOWN FLARE	
	START	END	MAX		ABS	SCNA	SEA	SPA				BUR
01	1744	1800	1749					X		1	RO+	1729
02	1822	1824							1	4	RO MC	
03	1508	1520	1515					X		1	RO+	
	1520	1618	1540					X			RO+	
	1618	1640	1622					X			RO+	
	2147	2148							1	5	RO HA	
04	1708	1710							1	5	RO MC RE	
04	1832	1836							1	5	RO HA MC RE (Group)	
04	1849	1853							1	5	RO HA MC	
04	1904	1905							1	4	RO MC	
04	1919	1920							1	5	RO HA MC	
04	1930	1950	1940					X		1	RO+	
04	1940	1942							1	5	RO HA MC	
05	1514	1540		SL 1						4	MC RE HU DP	
05	1623	1626							1	5	RO MC RE	
05	1952	1954							1	5	RO MC	
05	2210	2318	2233				2			4	A1 A6	
06	1334	1349	1339		7	1				5	MC RO	
	1334	1405	1345				1			5	MC A3 RO	
	1544	1545							1	5	RO MC RE	
	1746	1747							1	4	RO MC	
	1816	1820							1	5	RO MC RE	
	1856	1858							1	5	RO HA MC RE	
07	1611	1645	1622					X		1	RO+	
07	1859	1912	1903					X			RO+	
07	1950	2040	2015					X			RO+	
07	2321	2324							1	5	RO HA	
08	1107	1109							1	5	RE	1054
08	1535	1645	1600					X		1	RO+	
09	1645		1730					X		1	RO+	
09	1738	1900	1750					X			RO+	
09	2037	2041							1	5	RO HA MC RE	
10	0722	0752		< 1+						5	PU JU OK	
10	0939	0956	0948				1			1	TY	0810
10	1313	1335		< 1+						5	MC RE JU PR PU	1312
10	1522	1605		< 2						6	MC RE FM HU JU PR PU	
10	1642		1655					X		1	RO+	
10	1852	2100	1900					X			RO+	
11	1125	1155	1130					X		1	RO+	1100
11	1332	1352		< 1+					5	PR BE RO FM MC NE	1332	
11	1333	1500	1345					X		1	RO	
11	1335	1400	1341		76	1			3	RE MC		
11	1335	1416	1339				1		5	DU A1 MC		
11	1600	1930	1710					Y			RO	1615
11	1648	2052		< 2+					5	PR AN RE RO FM HU MC NE SW WS		
11	1650	1750	1704		76	3			5	RE RO HA MC		
11	1653	1838	1711				2		5	DU AS RO MC NE		
11	1704	2015							1	5	RO HA MC RE (Group)	
12	1000	1300	1040					X		1	RO+	1000
12	1020	1133	1035		43	1+			3	RE MC		
12	1023	1200		< 3					5	MC RE DA FM NE PR SW TN		
12	1024	1100	1038				2		5	A11 NE		
12	1030	1034							1	1	RE	
12	1120	1225							1	1	RE	
12	1830	1833							1	4	RO MC	
12	2130	2220	2140					X			RO+	
12	2249	2303	2252		15	1			4	RO MC	2248	
12	2251	2324	2257				1		5	TY A5 A9 A11 RO		
13	0905	0920		< 1					3	NE DA	0850	
13	1027	1035							1	1	PE	
13	1040	1046							1	1	PE	
13	2133	2205	2144				1+			1	TY	
13	2213	2234	2221				2		5	TY A5 A6 A9		
13	2248	2309	2254				1		5	TY A5	2240	
14	0027	0035							1	1	HA (Group)	
14	1650	1718	1702					X		1	RO+	
15	1434		1517					X		1	RO	1433
15	1435		1448				1		3	A1 A3		
15	1435	2050							5	RO MC RE (Noise Storm)		
15	1512	1530	1517		21	1			1	1	PE	

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IIIk

TO REPLACE JULY 1961 DATA PUBLISHED IN CRPL-205 B
PAGES III j, III k

IONOSPHERIC EFFECTS OF SOLAR FLARES

SHORT WAVE RADIO FADEOUTS
SUDDEN COSMIC NOISE ABSORPTION
SUDDEN ENHANCEMENTS OF ATMOSPHERICS
SUDDEN PHASE ANOMALIES
SOLAR NOISE BURSTS AT 18 Mc

JULY 1961

JULY 1961	UNIVERSAL TIME			SWF TYPE	IMP	IMPORTANCE					WIDE SPREAD INDEX	STATIONS	KNOWN FLARE
	START	END	MAX			ABS	SCNA	SEA	SPA	BUR			
15	1512	1705		S	3			1-			5	MC RE FM HU JU NE PP	1508
15	1515		1617								3	A2 A1	
15	1550	1800	1605						X			BO	
16	1300	1340						1			5	PA A1	1254
16	1942	2040	2008						X		1	BO	1038
17	0214	0307		S	1+						4	TO OK	*
17	0217	0228	0270			10	1				5	BO HA MC	
17	0731	0800		SL	1						5	OK BR	0720
17	0732	0814	0742					1			1	TY	
17	1308	1309								1	1	RE	1300
17	1310U	1400U	1320U					1+			3	A2 A3	
17	1310	1400	1321						X		1	BO	
17	1320	1350		S	1+						5	MC RE FM HU PP	
17	1350	1351								1-	1	RE	
17	2140	2220	2147			35	2				5	BO HA RE	2125
17	2140	2230		S	2+						5	MC RE FM HU PP TO	
17	2140	2300	2144						X		5	BO	
17	2141	2230	2152					2+			5	BO A2 A3 A5 A6 A9 HA	
18	0500	0530		S	2						4	OK TO	
18	0504	0528	0515					1			4	TY A11	
18	0807	0912	0816					2			5	TY A11 DU	0754
18	0808	0825		S	1						5	NE OK	
18	0943	1051	1030					2+			5	TY A11 DU NE	0921
18	0953	1036	1008						X		1	BO+	
18	1000	1153		S	3						5	PR NE PA SN	
18	1158	1415		SL	3-						5	PR FM HU PA SW	
18	1614	1618								1	4	BO MC	1617
19	1832	1848	1838						X		1	BO+	
19	1939	2000	1948						X			BO+	1903
19	2055	2200	2110						X		1	BO	2051
19	2100	2125		SL	1+						5	MC RE FM HU PP	
20	0316	0407		SL	2						5	OK CA TO	
20	0718	0809	0730					1+			5	DU NE TY	
20	0722	0752		S	1						5	DA NE OK TO	
20	1550	2200		S	3+						5	MC AN RE BO RP FM HU NE PP SW TO	1525F
20	1551		1600						X		1	BO	1525F
20	1552	1752						2+			5	NE A2 A3	
20	1552	2140				88	3				5	RE BO CO MC	
20	1557	2013								2	4	BO MC RE (Noise Storm)	
20	1615	1830	1624						X			BO+	1623F
21	0407	0442		S	1+						5	AD OK TO	
21	0506	0533		SL	1						5	AD OK	
21	1702	1816		S	2+						5	MC RO FM HU PP PU	0511
21	1702	1900	1710						X		1	BO	1714
21	1703		1708			20	1				5	BO HA MC	
21	1703		1710					2			5	BO A1 A2 A3 A5 HA	
21	1902	1905								1	5	BO HA MC	
21	1917	1920								1	4	BO MC	
22	0629	0755		S	2						5	OK DU	
23	1550	1700	1625						X		1	BO+	
23	2159	2201								1	5	BO HA MC	
23	2227	2231								2	5	BO HA MC RE	
24	0117	0120								1	1	HA	
24	0455	0620		SL	2+						1	OK	0500F
24	1114	1215	1122						X		1	BO+	
24	1737	1745								1	5	BO HA MC	1722
24	1740							1-			1	MC	
24	1748	1900	1810						X		1	BO	
24	1755	1930		SL	2+						5	MC RE FM HU PP	
24	1816	1820								1	4	BO MC	
24	2000	0124								2	5	BO HA MC (Noise Storm)	
25	1220	1231	1226							1+	1	RE	
25	1529	0035								1	5	BO HA MC RE (Noise Storm)	
26	1948	2030	1955						X		1	BO+	
27	2055	2240	2120								1	BO+	
27	2346	2348								1	1	HA	
28	0227	0331		SL	2+						5	AD CA NZ OK SY TO	
28	0229	0347	0243			30	2				1	HA	
28	0232	0316	0247					1+			1	TY	
28	0235	0258								2	1	HA (Group)	
30	2056	2128	2102					1			4	A5 A2 A6	

Notes:

- BR = Freisach; CA = Canberra; CO = College, Alaska; DA = Darmstadt; DU = Dunsink; JU = Juhlesruh; PM = Paramaribo; RE = Renssler; SY = Sydney; TA = Tasmania; TN = Tangiers.
- Asterisk * indicates Sudden Enhancement of Signal from 18 kc (NBA Panama Canal Zone) observed by A5.
- For SFA data BO+ indicates reception of GBR, BO indicates reception of NBA.
- In known flare column + indicates no known flare patrol at times of event.

COMMERCE - STANDARDS - BOULDER

IVa

SOLAR RADIO EMISSION OUTSTANDING OCCURRENCES

OCTOBER 1961

OTTAWA

2800 MC

OCT. 1961	TYPE	START UT	DURATION HRS MINS	MAXIMUM			REMARKS
				TIME UT MAX	PEAK FLUX	MEAN FLUX	
2	3 Simple 3	1435	1 00	1440	3	1.5	
10	3 Simple 3	1223	1 14	1229	8	5	
22	6 Complex f	1841	7	1843	28	6	

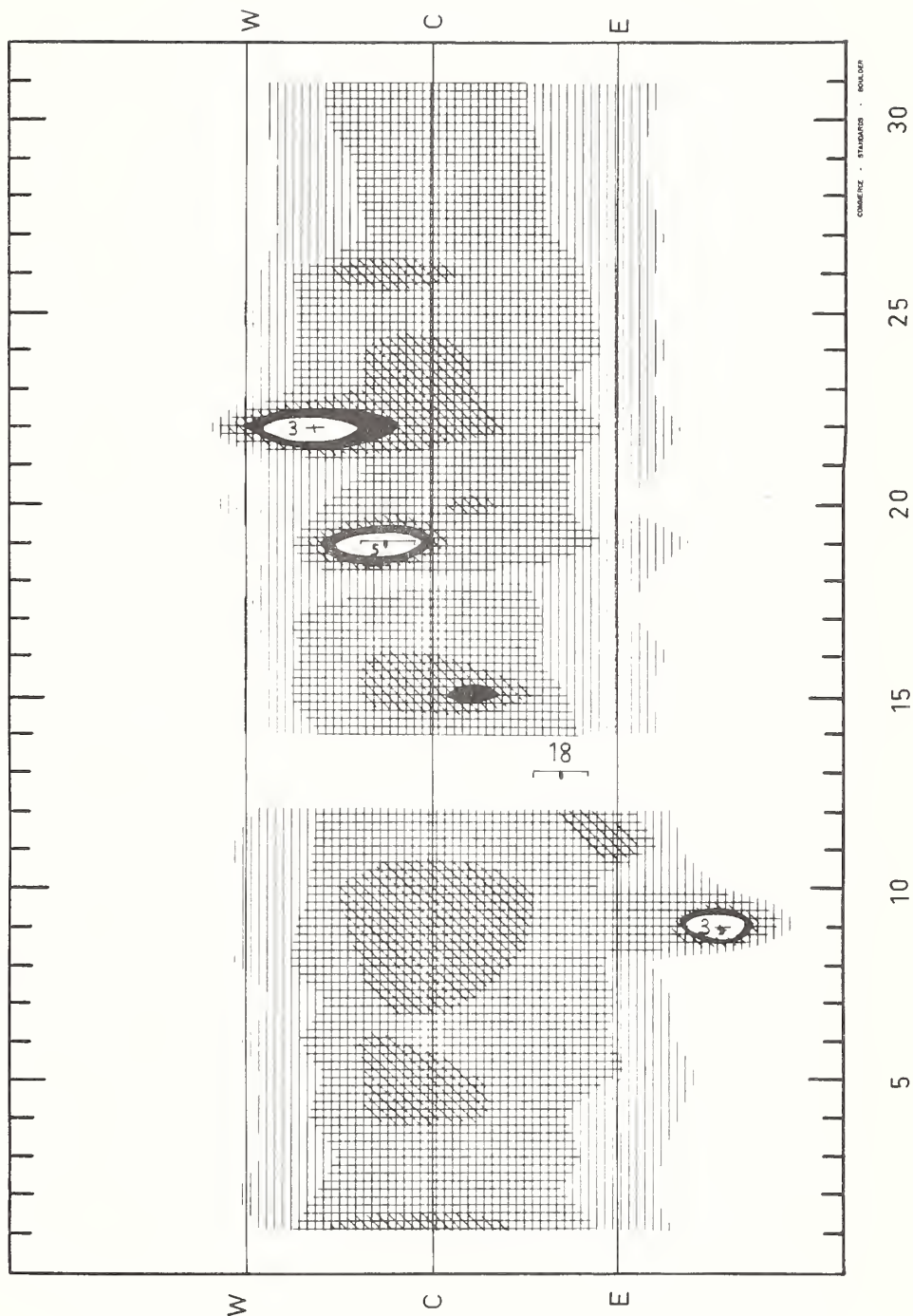
COMMERCE - STANDARDS - BOULDER

SOLAR RADIO EMISSION INTERFEROMETRIC OBSERVATIONS

Nançay

OCTOBER 1961

169 Mc



SOLAR RADIO EMISSION OUTSTANDING OCCURRENCES

OCTOBER 1961

BOULDER

108 Mc

Oct. 1961	Type	Start UT	Time of Maximum UT	Duration Minutes	Intensity
9	1	2225		57	2
11	2	1540	1547	11	2
11	2	2304	2306	11	3
12	8	1524	1528	6.0	3
14	7	2147	2328	133 D	2
17	1	1512		345	2
18	2	1548.0	1549.0	4.5	3
19	3	1430.0	1431.5	2.5	3
19	1	1652		254	2
21	3	1447.0	1447.5	1.0	3
21	3	1507.5	1508.0	1.0	2
22	3	1717.0	1718.0	2.3	2
23	8	1501.5	1502.5	4.5	3
24	3	2041.0	2041.5	0.7	3
25	2	1444.8	1445.0	4.5	3
30	3	1354.0	1354.0	1.5	2

COMMERCE - STANDARDS - BOULDER

NOMINAL TIMES OF OBSERVATION

OCTOBER 1961

BOULDER

108 MC

Oct. 1961	U.T.		Oct. 1961	U.T.	
1	1301-0028		17	1512-0003	
2	1302-0026		18	1318-0001	
3	1303-0025		19	1319-0000	
4	1304-0023		20	1320-2359	
5	1305-0021		21	1322-2357	
6	1306-0020		22	1323-2356	
7	1307-0018		23	1324-2355	
8	1308-0017		24	1325-2353	
9	1309-1634;		25	1326-2352	
	1755-0015		26	1327-2351	
10	1310-1610;		27	1328-2350	
	1730-0014		28	1329-2349	
11	1311-0012		29	1330-1350;	
12	1312-0011			1530-2348	
13	1313-0009	I 2145-0009	30	1331-2345	
14	1314-0008		31	1333-2344	
15	1315-0006				
16	1316-0005				

COMMERCE - STANDARDS - BOULDER

SOLAR RADIO EMISSION SPECTRUM OBSERVATIONS

IVd

JUNE — SEPTEMBER 1961

OWENS VALLEY, CALIFORNIA

540-975 Mc

1961 <small>VICTOR 481-15</small>	OBSERVING HOURS	IMPORTANT BURSTS			FREQUENCY RANGE MC	REMARKS
		TYPE	TIMES U T	INT		
June 28	1923-2405.5					No activity
June 29	1619-2130					No activity
July 5	1641-2410	IIIB Cont.	2234 2402	1- 1-	625-575 450-1000	1 second duration 15 seconds duration
July 6	1632-1908 1913-2410					No activity No activity
Aug. 15	1855-2411					No activity
Aug. 16	1623-1957 2054-2311 2342-2401					No activity No activity No activity
Aug. 17	1613-1856 1900-2409	Cont.	2112	1-	450-700	No activity 4 seconds duration
Aug. 18	1658-2359					No activity
Aug. 19	1654-2409					No activity
Aug. 20	1626-2409					No activity
Aug. 21	1621-2357					No activity
Aug. 22	2012-2352					No activity
Aug. 23	1655-1745					No activity
Aug. 24	1638-2402					No activity
Aug. 25	1629-2351					No activity
Aug. 26	1643-2409					No activity
Sep. 5	1730-2400					No activity
Sep. 6	1608-2243 2253-2401					No activity No activity
Sep. 7	1605-2255					No activity
Sep. 8	1620-1730 1833-2040 2125-2230 2314-2353					No activity No activity No activity No activity
Sep. 12	1607-1710 2009-2347 2347.25-2356					No activity No activity No activity
Sep. 13	1747-1855 1858-2017 2106-2146					No activity No activity No activity
Sep. 14	1710-2116 2127-2350					No activity No activity
Sep. 15	1606-1835 1950-2400					No activity No activity
Sep. 18	2120-2400					No activity
Sep. 19	1601-1822 1825-2401	IIIB	1624.5	1-	460	Short shift No activity
Sep. 20	1600-2359					No activity
Sep. 21	1602-2313 2330-2358					No activity No activity
Sep. 22	1608-2400					No activity
Sep. 23	1639-2358					No activity

SOLAR RADIO EMISSION SPECTRUM OBSERVATIONS

SEPTEMBER—NOVEMBER 1961

OWENS VALLEY, CALIFORNIA

540-975 Mc

Date 1961	Observing Hours	Important Bursts			Frequency Range Mcs	Remarks
		Type	Times U.T.	Int.		
Sep. 26	1608-1814 2122-2358					No activity No activity
Sep. 27	1603-2400					No activity
Sep. 28	1558-2359	IIIG	1952.75	1-	Below 450	Two pair
Sep. 29	1625-2140 2144-2345	IIIG Cont. IIIG Cont. IIIG	2200-2204 2204-2209 2205-2206 2209-2240 2328	1- 2 2 1- 1-	550-450 1000-450 600-450 950-450 Below 450	No activity Very short drift bursts Smooth wide band Each 1 second duration, fast drift rate Slow fade out, smooth Fast drift rate
Sep. 30	1658-2347					No activity
Oct. 2	1627-2148					No activity
Oct. 9	1752-2351	IIIG III IIIB IIIG IIIG	1845 2053 2136.5 2224-2225 2227.5	1- 1 1 1 1	Below 450 475 460 Above 800* Above 800*	0.5 second duration, fast drift rate Pair, 2 second duration, short frequency shift 0.5 second duration, short frequency shift 0.25 second duration, fast shift 0.25 second duration, fast shift
Oct. 10	1628-2346					No activity
Oct. 12	1636-2348	III IIIG IIIG	1920.5 1927 2048-2050	1- 1 1-	650-600 750-600 1000-800	0.5 second duration, short frequency shift 0.5 second duration, fast frequency shift 0.5 second duration, fast frequency shift
Oct. 13						No activity
Oct. 16	1640-1822 2004-2248					No activity No activity
Oct. 17	1629-1846 1947-2334					No activity No activity
Oct. 18	1637-1906 2048-2352					No activity No activity
Oct. 19	1634-1831 1835-2353	IIIG	2211	1-	650-500	No activity 0.5 second duration, fast frequency shift
Oct. 20	1631-2237					No activity
Oct. 21	1722-1831					No activity
Oct. 22	1645-1851 2151-2356					No activity No activity
Oct. 23	1634-2028 2032-2156					No activity No activity
Oct. 24	1626-1832					No activity
Oct. 25	1636-2350					No activity
Oct. 26	1616-1900 1944-2349					No activity No activity
Oct. 27	1638-1928 1932-2350					No activity No activity
Oct. 30	1620-1509					No activity
Oct. 31	1648-2352					No activity
Nov. 1	1634-1748					No activity

COMMERCE - STANDARDS - BOULDER

*Note: On October 9 receiver limits 800 Mc to 450 Mc, on other days between
June 28 through November 1 receiver limits 1000 Mc to 450 Mc.

SOLAR RADIO EMISSION SPECTRUM OBSERVATIONS

IVf

MARCH 1961

HAO BOULDER

7.6-41 MC

Date 1961	Bursts			Frequency Range (mc)	Date 1961	Bursts			Frequency Range (mc)
	Type	Time (U.T.)	Intensity			Type	Time (U.T.)	Intensity	
7 Mar	III	2109-2110.30	1-	31-h1	22 Mar	III	2347.30-2347.45	1-	27-h1
8	III	2147.45-2148	1-	24-h1		III	2411.45-2412	1-	26-h1
14	III	2138.45-2139.15	1-	22-h1	23	continuum	61357.30-a2430	1+	21-h1
	II	2145.30-2151.45	1-	27-38		III	1518.30-1519.30	1	11-h1
	IV	2220-2245	1-	26-36		III	1733-1733.45	1+	13-h1
18	III	1400.30-1401	1-	27-h1		III	1747.45-1749	1-	25-h1
	III	1401-1401.45	1-	21-h1		III	1752.15-1753.15	1-	24-h1
	III	1451.45-1452	1-	20-h1		III	1757-1757.15	1-	27-h1
	III	1612-1612.15	1-	25-h1		III	1826.30-1826.45	1-	27-h1
	II	1627.45-1640	1	23-h1		III	1919-1919.15	1-	26-h1
	III	1739-1743.15	1+	11-h1		III	1958-1958.15	1-	28-h1
	III	1744-1744.15	1	27-h1		III	1958.30-1958.45	1-	28-h1
	II	1757-1800.45	1	28-h1		III	2005-2005.15	1-	25-h1
	III	2152.30-2153	1	22-h1		III	2035.15-2035.30	1-	23-h1
19	III	1503.15-1505	1-	24-h1		III	2045-2045.15	1-	22-h1
	III	1918.30-1918.45	1-	22-h1		III	2120.15-2121	1-	22-h1
	III	1922.15-1922.30	1-	27-h1		III	2155.30-2155.45	1-	29-h1
20	III	1659.15-1701.30	1-	24-h1		III	2156.30-2156.45	1-	24-h1
	III	1711-1711.15	1-	20-h1		III	2203.45-2204	1-	22-h1
	III	1713.30-1713.45	1-	20-h1		III	2216.15-2216.30	1	22-h1
	III	1747.15-1748.15	1-	23-h1		III	2240.30-2241	1+	16-h1
	III	2130.45-2131.15	1-	24-h1		III	2241-2241.15	1-	23-h1
	III	2132.15-2132.30	1-	32-h1		III	2306.15-2306.30	1-	28-h1
	III	2257.30-2257.45	1-	25-h1		III	2308-2308.15	1-	22-h1
21	III	1700-1700.15	1-	27-39		III	2311.15-2311.30	1-	27-36
	III	1757-1757.30	1-	24-h1		III	2315.45-2316	1-	26-h1
	III	2005-2006.30	1	21-h1		III	2328.30-2328.45	1	24-h1
	III	2105.15-2105.30	1-	23-h1		III	2355.30-2355.45	1	19-h1
	III	2148.45-2149	1-	22-h1		III	2410.15-2410.30	1	20-h1
	II	2222.45-2237	1	28-h1		III	2412.15-2412.30	1-	22-h1
	IV	2237-a2330	1-	26-h1		III	2412.30-2412.45	1-	23-h1
22	III	1413.45-1414	1-	25-h1		III	2413.15-2413.30	1-	22-h1
	III	1414.30-1414.45	1-	21-h1		III	2414.15-2414.30	1-	29-h1
	III	1418.15-1418.30	1-	24-h1		III	2417.30-2417.45	1-	23-h1
	III	1419.30-1419.45	1-	21-h1		III	2421.45-2422.15	1	21-h1
	III	1519.15-1519.30	1-	23-35	24	continuum	61350-a2457	1+	22-h1
	III	1542.30-1542.45	1-	30-37		III	1633.45-1634	1	16-h1
	III	1543.30-1543.45	1-	26-35		III	1644.45-1645.30	1+	11-h1
	III	1608.15-1608.30	1-	17-h1		III	1852.30-1853	1	23-h1
	III	1641.30-1643.30	1-	23-h1		III	1952.45-1953	1+	11-h1
	continuum	1643.30-2353.30	1-	25-h1		III	1955.30-1956	1	22-h1
	III	1728.30-1728.45	1-	29-h1		III	1956-1956.30	1	22-h1
	III	1732.15-1732.45	1-	27-h1		III	2130-2130.30	1	17-h1
	III	1751.45-1752.30	1	10-h1		III	2236.45-2237.15	1+	22-h1
	III	1849.45-1850.30	1	12-h1		III	2243.30-2249	1+	21-h1
	III	1857.45-1858	1-	27-h1		III	2339-2339.30	1+	20-h1
	III	1911.30-1911.45	1-	24-36		III	2404.45-2405	1	24-h1
	III	1917-1917.30	1	21-h1	25	continuum	61347-a2445	1-	24-h1
	III	1936.30-1937	1-	24-h1		III	1733.30-1734.15	1	23-h1
	III	1946-1946.45	1-	24-h1		III	1906-1906.30	1	22-h1
	III	2004.45-2005	1-	26-32		III	2016.15-2016.45	1	21-h1
	III	2007.30-2007.45	1-	25-34		III	2019.15-2019.45	1	20-h1
	III	2027.15-2027.30	1-	26-h1		III	2251-2259.30	1+	22-h1
	III	2028.15-2028.45	1	26-h1	26	continuum	61355-2400	1	25-h1
	III	2137.30-2138	1-	20-h1		III	2237.30-2238	1	22-h1
	III	2143.30-2143.45	1-	24-h1		III	2357.30-2358	1	22-h1
	III	2150-2150.30	1	22-h1		III	2407-2419	1	20-h1
	III	2152-2152.15	1-	22-h1		II	2424-2440	1	21-h1
	III	2220-2220.30	1-	24-h1	27	continuum	61406-a2445	1	24-h1
	III	2226-2226.15	1-	28-36		III	2333.15-2334	1+	22-h1
	III	2227.15-2227.30	1-	24-36		III	2441-2443.30	1	23-h1
	III	2239-2240.30	1-	25-h1		III	2443.30-2444	1	23-h1
	III	2243.30-2244.30	1-	20-h1	28	III	1519-1519.15	1-	27-35
	III	2248-2248.15	1-	25-h1		III	1742-1742.15	1-	28-h1
	III	2339.30-2339.45	1-	20-h1		continuum	1743-2020	1-	26-h1

SOLAR RADIO EMISSION SPECTRUM OBSERVATIONS

MARCH-APRIL 1961

HAO BOULDER

7.6-41 MC

Date	Bursts			Frequency Range (mc)	Date	Bursts			Frequency Range (mc)
1961	Type	Time (U.T.)	Intensity		1961	Type	Time (U.T.)	Intensity	
28 Mar	III	1742-1742.15	1-	26-41	17 Apr	III	1935.15-1935.30	1-	11-41
	III	1825.45-1826	1-	27-41		III	1946-	1-	8-35
	III	1925-1925.30	1-	24-41		III	2105.45-2106	1-	23-41
	III	1944-1944.15	1-	25-33		III	2144.45-2145	1-	21-41
	III	2006.30-2006.45	1-	27-38		III	2150.45-2151	1-	22-41
	continuum	2130-a2325	1-	27-41		III	2240-2240.30	1-	24-41
	III	2223.30-2223.45	1-	26-41		III	2341-2341.30	1-	13-41
	III	2237-2237.30	1-	26-41	18	III	1431.30-1432	1-	15-41
	III	2313.30-2313.45	1-	26-41		III	1440.30-1441	1-	9-41
29	III	1525.30-1526.15	1-	17-41		III	1516.15-1516.45	1-	13-41
	III	1819.30-1820	1-	25-41		III	1541.30-1542	1-	8-41
	III	2232.30-2233	1-	26-36		III	1608.30-1609.30	1-	8-41
31	III	1451-1451.15	1-	30-41		III	1648.30-1649	1-	19-41
	III	2250.45-2251.15	1	21-41		III	1709.45-1710	1-	11-41
	continuum	2304-2314		28-41		continuum	1845-2310	1-	23-41
2x Apr	continuum	2151.15-2157.30	1-	26-38	19x ¹	III	1445.30-1445.45	1-	23-39
4	III	2239-2240	1-	21-41		continuum	1815-1825	1-	26-41
	III	2242-2242.15	1-	21-41		III	1947.45-1948	1-	16-41
	III	2242.15-2243	1	21-41	20	continuum	14400-1705	1-	23-41
	III	2244.45-2245.45	1-	21-41		continuum	2233-2503	1	23-41
5	IV	2248-2302		27-41	21	continuum	1405-1420	1-	23-41
	III	1546.45-1547.15	1-	19-41		III	1405-1405.30	1-	23-41
	III	1600.30-1601	1-	22-41		III	1410.30-1411	1-	21-41
	III	1604-1604.30	1-	19-41		III	1424.30-1425.45	1-	25-41
	III	1610.45-1611.15	1-	12-41		III	1418-1418.45	1-	25-41
	III	1629.30-1630.15	1-	24-41		III	1424.30-1424.45	1-	20-41
	III	1645.45-1650	1-	28-41		III	1431-1431.15	1-	12-41
	III	1653.30-1654	1-	19-32		continuum	1816-a2437	1-	25-41
	III	1703-1704	2	9-41	22	III	1400-1400.30	1-	24-41
	III	1705.30-1706	1	22-41		III	1401.45-1402	1-	21-41
	III	1903.30-1904	2	9-41		III	1406.15-1405.30	1-	22-41
	III	1904.30-1905.30	2	9-41		III	1410-1410.30	1-	22-41
	III	1917.30-1918.30	2	9-41		III	1547.45-1548	1-	23-41
	III	2056.30-2057.15	1-	22-41		III	1845.45-1846	1-	9-41
	III	2058-2058.30	1-	22-41		III	1920.45-1921	1	15-41
	III	2059.45-2100.15	1-	22-41		III	1931.30-1931.45	1	8-41
	continuum	2102-2110		25-41		III	1941-1941.15	1-	22-41
	III	2202.15-2203	1-	20-41		continuum	1958-2200	1-	23-41
6	III	2204.15-2205.30	1-	13-41		III	2140.15-2141	1+	8-41
	III	1503-1503.30	1-	22-41	23	III	1420-1421.45	1-	25-41
	III	1536-1537.30	1-	11-41		III	1424.15-1424.30	1-	23-38
	III	1538-1540.30	1-	11-41		III	1429-1429.30	1-	22-41
	III	1542.30-1542.45	1-	13-41		III	1430.45-1431	1-	22-41
	III	1625.30-1625.45	1-	11-41		III	1449.15-1450	1-	21-41
	continuum	1625.45-1637.30	1-	22-41		III	1454.45-1455	1-	22-41
	III	1643.15-1643.30	1-	10-41		continuum	1645-1650	1-	20-41
	III	1650.30-1651	1-	9-41		III	1644-1644.15	1-	23-41
10	III	1830.30-1830.45	1-	30-41		III	2125.30-2125.45	1-	20-41
	III	1926-1926.30	1-	30-41		III	2209.30-2209.45	1-	22-41
11	III	1451.30-1451.45	1-	20-41	24	III	1501.15-1501.30	1-	21-34
	III	1506.45-1507.30	1-	10-41		III	1744.30-1746.30	1-	28-41
	III	1919.45-1920.30	1-	9-41		III	1726	1-	27-41
	III	2013.30-2014	1	8-41	25	III	1811.15-1811.45	1-	6-38
	III	2016.30-2017	1-	8-41	28	III	1506-1508.30	1-	6-39
	III	2100-2100.30	1-	21-41		III	1650.30-1650.45	1-	20-35
14	III	1849.30-1850.15	1-	9-41		III	1653.15-1653.45	1-	20-39
	III	2113-2113.30	1	11-41		III	1656.45-1657	1-	23-35
15	III	2210.30-2211	1-	11-41	30	III	2154.45-2155.15	1-	19-40
	III	2212-2212.15	1-	15-35		III	2156	1-	8-40
	III	2214.15-2214.30	1-	13-41					
	III	2301.30-2302	1-	11-41					
17	III	1407-1407.30	1-	19-41					
	III	1752-1752.30	1-	9-41					
	III	1757.45-1758	1-	8-37					
	III	1851.30-1851.45	1-	9-41					

x = no observations before 1904
x¹ = no observations 1634-1908

SOLAR RADIO EMISSION SPECTRUM OBSERVATIONS

IVh

MAY 1961

HAO BOULDER

7.6 - 41 MC

Date 1961	Bursts				Frequency Range (mc)	Date 1961	Bursts				Frequency Range (mc)
	Type	Time (U.T.)	Intensity				Type	Time (U.T.)	Intensity		
2 May	III	1528.45-1529	1-		27-35	5 May	III	2350-2350.30	1-		20-41
	III	1921.15-1922.15	1-		8-40		III	2351.15-2352.15	1-		11-41
	III	2113-2114	1-		8-27		III	2354.45-2355.45	1		11-41
	III	2159-2200.15	1-		25-40		III	2356-2356.30	1-		15-27
	III	2309-2309.30	1-		29-39		III	2358.15-2400	2		9-41
3	III	1542.30-1543.30	1-		19-40	6	III	2421.30-2422	1-		16-41
	III	1632.30-1634.45	1-		23-34		III	2430-2430.30	1-		23-35
	III	1838.30-1839.45	1-		24-41		III	2432.45-2433.15	1-		19-41
4	III	1410-1410.30	1-		29-41		III	1409.30-1409	1		15-41
	III	1411-1412	1-		29-41		III	1447.45-1449.15	1-		8-33
	III	1433.30-1434	1-		20-41	7	III	1454.45-1455.30	1-		11-37
	III	1458			22-41		III	1551-1551.15	1-		23-40
	III	1614-1614.15	1-		20-41		III	1617.45-1621.45	1		7.6-41
	III	2034-2034.30	1-		10-41		III	1623.45-1624.30	1		7.6-41
	III	2037.30-2038	1-		11-41		III	2209-2212.30	1-		8-41
	III	2201.30-2202	1-		22-41		III	2213.45-2215.15	1-		13-40
	III	2203-2205	2		12-41		IV	1452-1513	1-		31-40
	III	2208.30-2212.30	2		12-41		III	1724-1725.30	1-		8-40
	II	2209-2237.30	1		20-41		III	1726.15-1726.30	1-		8-15
	IV	2249-2401	1-		26-41		III	2147.15-2148.15	1-		13-41
5	III	1500.30-1501	1-		8-41	8	III	2151.45-2152.45	1		12-41
	III	1623.30-1625	1-		7.6-41		III	2327-2328	1		20-41
	III	1625	1-		8-41		III	2321.30-2321.45	1-		21-41
	III	1804.15-1805.30	1		8-41		III	2321.45-2322	1-		21-41
	III	1835.15-1836.30	1-		9-40		III	1555-1555.45	1-		8-17
	III	1838.30-1839	1-		8-40	9	III	1556-1556.30	1		8-39
	III	1929-1930.45	2		8-41		continuum	1605-1614.30	1		20-41
	III	1932.15-1932.30	1-		29-41		III	1607-1607.30	2		8-41
	III	1942.45-1943	1-		36-41		III	1620-1620.15	1		21-40
	III	1950-1953	1-		30-40		III	1620.30-1620.45	1-		18-40
	III	1959.45-2000.30	1-		8-41	10	III	1859.30-1859.45	1-		33-39
	III	2027.45-2028.45	1-		19-41		III	2142.45-2143.30	1-		11-30
	III	2031.15-2032.30	1		9-41		III	2225.15-2225.30	1-		22-32
	III	2033-2033.30	1-		21-41		III	1607.15-1607.30	1-		20-41
	III	2034.15-2035.15	1-		7.6-41		III	1757.45-1758	1		30-41
	III	2035.30-2036	1-		16-41	11	III	1758.15-1758.45	1		25-41
	III	2045-2046	1		8-41		III	1759-1800.45	2		18-41
	III	2049-2050.15	1		7.6-41		III	1801.30-1801.45	1		22-41
	III	2050-2050.30	1-		11-41		III	1807.30-1807.45	1		9-41
	III	2050.45-2051.45	1		7.6-41		III	1356-1358.15	1+		12-41
	III	2052.30-2053.30	1		7.6-41	12	III	1605-1605.15	1-		20-41
	III	2058.15-2058.45	1-		20-41		III	1607-1607.30	1-		20-41
	III	2059-2059.45	1		8-40		III	1747.45-1748.15	1		17-41
	III	2100.15-2100.30	1-		25-37		III	1748.45-1749.15	1		19-41
	III	2100.45-2101	1-		21-29		III	1850.30-1853	1-		8-41
	III	2102.15-2102.45	1-		16-41		III	2015.45-2016.30	1-		17-41
	III	2136-2137	1		16-41		III	2018.30-2018.45	1-		23-37
	III	2140-2140.30	1-		16-41		III	2100-2103.15	1		7.6-41
	III	2145.30-2146.15	1		16-41		III	2103-2103.15	1-		22-36
	III	2209.45-2210.45	1		17-41		III	2123.45-2124.30	1		20-40
	III	2210.45-2212	1+		7.6-41		III	2304.45-2306.15	1+		13-41
	III	2212.15-2212.30	1-		18-41		III	2309.15-2310.30	1		16-41
	III	2218.45-2219.15	1-		16-34		III	2312.15-2313.30	1		13-41
	III	2226.15-2227	1-		15-28		III	2348.30-2351.30	2		11-41
	III	2230-2235	2		7.6-41		III	2359.30-2403.30	2		11-41
	III	2242.30-2243	1		18-41		III	2444-2444.45	1-		26-39
	III	2245-2245.30	1		16-41		III	2448.15-2448.30	1-		31-41
	III	2328.45-2329.30	1-		16-40		III	2509.45-2512	1+		14-41
	III	2338.45-2338.47	1-		33-41		III	2514.45-2515	1-		21-41
	III	2348.30-2349.45	1-		11-41		III	2516.15-2516.45	1-		21-37
							III	2519.45-2520.15	1-		30-41

d = harmonic structure

COMMERCE - STANDARDS - BOULDER

SOLAR RADIO EMISSION SPECTRUM OBSERVATIONS

MAY-JUNE 1961

HAO BOULDER

7.6 - 41 MC

Date	Bursts				Frequency Range (mc)	Date	Bursts				Frequency Range (mc)
1961	Type	Time (U.T.)	Inten- sity			1961	Type	Time (U.T.)	Inten- sity		
17 May	III	1755.30-1757.15	1		8-41	1 Jun	III	1637	1		20-37
19	III	1900-1900.15	1-		8-39		III	1725	1		8-27
	III	1900.15-1900.30	1-		23-35		III	1813	1		30-41
	III	2017-2017.15	1-		24-33		III	2009.45-2010	1-		22-41
	III	2025.30-2026	1-		24-38		III	2135.15-2135.30	1-		8-41
	III	2055.45-2057.30	1-		10-32	5	III	2308	1		18-30
	III	2115.15-2115.30	1-		25-32		III	1547.30-1549.15	1		8-41
	III	2118-2118.30	1-		23-34		III	1741	1		20-41
	continuum	2120-2130	1-		22-36		III	2033	1		25-40
	III	2300-2300.15	1-		20-30		III	2141.30-2142	1-		9-41
	III	2312.15-2312.30	1-		21-41		III	2143.15-2143.30	1-		21-41
	III	2314.30-2314.45	1-		25-34		III	2145.30-2145.45	1-		16-41
20	III	2349	1-		22-41		III	2148.15-2148.30	1-		21-41
	III	1753.30-1754.15	1-		22-41		III	2149-2149.30	1-		8-41
	III	1948.45-1949.15	1-		7.6-39		III	2152-2152.30	1-		16-41
	III	1949.30-1951.30	1+		7.6-41		III	2302.45-2303.15	1-		11-41
	III	1952.45-1953.30	1		7.6-41		III	2303.30-2304	1-		11-41
	III	1953-1953.15	1-		25-32		III	2308-2309	1		12-41
	III	1953.30-1953.45	1		20-41		III	2311.15-2311.30	1-		16-41
	III	2036.15-2036.30	1-		24-30		III	2316-2316.15	1-		21-41
	III	2049-2049.30	1-		27-40	6	continuum	1553-2240	1-		23-41
	III	2057.30-2058	1-		16-41		III	2003.45-2004.15	1		16-41
	III	2423.30-2424.15	1-		22-32		III	2007.45-2008.30	1-		22-41
21	III	1554-1554.30	1-		11-41		III	2038.30-2038.45	1-		21-41
22	III	1434	1		22-40		III	2056.30-2056.45	1-		23-41
	III	1518.30-1518.45	1-		11-41		III	2103.45-2104	1-		23-41
	III	1603.15-1603.30	1-		12-41		III	2138.15-2138.30	1-		24-41
	III	1605-1605.30	1-		8-41		III	2307.45-2308	1-		28-41
	III	1605.30-1605.45	1-		8-41	7	III	2327.15-2327.30	1-		16-29
	III	1632.45-1633	1-		8-41	8	III	1905	2		17-41
	III	1634.15-1636.30	2		8-41	9	III	2023.15-2023.30	1-		25-39
	III	1652	1		21-30		III	2031.30-2031.45	1-		22-35
	III	1710.45-1711.30	2		8-41		III	2138.15-2143	3		23-41
	III	1740	1-		8-29		II	2138-2159	3		24-41
	III	1751.45-1752.45	1		7.6-41		IV	2153.30-2243	1-		23-41
	III	1851-1853	2		8-41	11	III	1453.30-1454.15	1-		15-39
	III	2152.30-2153	1+		10-41		III	1504-1510	2		10-41
	III	2309-2310.30	2		12-41		II	1508-1512	2		12-41
	III	2447.30-2447.45	1		16-41		III	1516-1518	2		12-41
	III	2523.45-2524	1-		16-41		II	1516-1523	3		11-41
	III	2525.30-2526	1-		16-41		IV	1520-1528	2		28-41
	III	2531-2531.45	1-		16-41	12	III	1813.30-1814.45	1+		7.6-41
	III	2536-2537	1-		16-41	13	III	1424-1424.15	1-		22-41
24	III	1526	1		8-25		III	1458-1458.30	1		11-41
25	III	1403.45-1404	1-		17-30		III	1553	3		29-41
	III	1420.30-1420.45	1-		12-41		III	1631.45-1632.45	1		7.6-41
	III	2030.45-2031	1-		20-41		III	1930.15-1930.30	1-		23-41
	III	2245-2245.15	1-		16-39		III	2030-2030.30	1-		21-41
29	III	2330.15-2330.30	1-		24-38		III	2031-2031.15	1-		21-41
30	III	2123-2123.30	1-		11-27		III	2035.45-2038	1+		7.6-41
	III	2333-2334.45	1		13-41		III	2036-2038	2		8-41
1 June	III	2034-2034.15	1-		27-41		III	2129.15-2129.30	1-		21-41
	III	2102.15-2102.45	1-		27-40		III	2129.45-2130.45	1		7.6-41
2	III	1347	1-		21-41		III	2131.30-2131.45	1-		21-41
	III	1410.30-1410.45	1-		17-41		III	2139-2139.15	1-		19-41
	III	1434-1434.15	1-		20-36		III	2141.45-2143.15	1		22-41
	III	1632	1		23-36		III	2217.30-2218	1		21-41
	III	1846.30-1847.30	1-		8-13		III	1412.15-1413	1-		22-41
	III	1417	1-		22-41	14	III	1613-1616.30	1		7.6-41
3	III	1601	1		10-33		continuum	1628-1635	2		7.6-41

SOLAR RADIO EMISSION SPECTRUM OBSERVATIONS

IVj

JUNE 1961

HAO BOULDER

7.6-41 MC

Date 1961	Bursts			Frequency Range (mc)	Date 1961	Bursts			Frequency Range (mc)
	Type	Time (U.T.)	Inten- sity			Type	Time (U.T.)	Inten- sity	
14 Jun	III	1643-1644	1-	31-h1	15 Jun	III	2111.15-2113.15	1	7.6-h1
	III	1728	2	30-h1		III	2116-2118.45	1	8-h1
	III	1730.30-1732	3	27-h1		III	2133.15-2133.30	1-	22-h1
	III	1733.30-1734	2	32-h1		III	2144.45-2145.30	1	13-h1
	III	1806-1806.45	1-	9-h1		III	2155.15-2155.30	1	21-h1
	III	2006	1-	7.6-h1		III	2202.30-2208.30	1-	8-h1
	III	2045.30-2045.45	1-	7.6-36		III	2203-2206	2	7.6-h1
	III	2046.30-2049.30	1+	7.6-h1		III	2206.30-2207.30	1+	7.6-h1
	III	2151.15-2151.30	1-	24-34		III	2211.15-2215.15	1	9-h1
	III	2153-2153.15	1-	26-h1		III	2225-2225.15	1-	13-34
	III	2154.30-2154.45	1-	24-38		III	2234.15-2234.45	1-	13-h1
	III	2244.15-2244.30	1-	22-h1		III	2239.45-2240	1-	21-35
	III	2245-2245.30	1-	22-h1		III	2307-2308.15	1	10-h1
	III	2247-2248.15	1-	13-h1		III	2339.15-2340.30	1-	17-h1
	III	2326	1	30-36		III	2346-2349.30	1	11-h1
15	III	2333.15-2336	1	7.6-h1	16c	III	2420.15-2421	1-	17-h1
	III	2357-2359.30	1	13-h1		III	2428.15-2428.30	1-	22-39
	III	2503.30-2504	1-	24-h1		III	2432-2432.30	1-	22-h1
	III	1401-1401.30	1-	17-h1		III	2434.15-2436.30	1	12-h1
	III	1402-1403	1-	17-h1		III	2444.45-2444	1+	11-h1
	III	1406.30-1407.15	1-	13-h1		III	2512-2512.30	1-	21-h1
	III	1407.15-1408	1-	21-h1		III	2513-2514	1-	21-h1
	III	1421.45-1422.30	1-	12-h1		III	2543.30-2544	1-	16-h1
	III	1432.45-1433.15	1-	22-39		III	2544.15-2548	1-	21-h1
	III	1438.45-1439.30	1-	16-h0		III	2605.15-2606.15	1-	17-38
	III	1454.30-1457	1+	7.6-h1		III	2607.45-2608.30	1-	17-38
	III	1546.15-1546.45	1-	28-h1		III	2613.45-2614.45	1-	17-27
	III	1552-1553.30	1	23-h1		III	2615.15-2616	1-	17-30
	III	1601-1601.30	1-	25-h1		III	1424.45-1425	1-	20-38
	III	1607.45-1608.45	1	8-h1		III	1508.15-1509	1	10-h1
16	III	1608.45-1609.30	1	12-h1	17	III	1519-1519.15	1-	23-h0
	III	1631-1632	1	21-h1		III	1618-1618.15	1-	25-h0
	III	1635-1637.30	1+	8-h1		III	1628.30-1628.45	1-	24-h0
	III	1638.45-1646.45	2	7.6-h1		III	1728-1728.30	1-	23-h0
	II	1649-1708	1+	20-h1		III	1734.30-1735	1-	23-37
	III	1701.30-1709.15	2+	7.6-h1		III	1813.15-1814.15	1-	8-h1
	III	1709.15-1710.30	2	8-h1		III	1814.15-1815.15	1-	8-h1
	III	1717.30-1722.15	2	7.6-h1		III	1825.15-1825.45	1-	16-37
	IV	1717-1732	1-	25-h1		III	2032.15-2033.30	1	9-h1
	III	1739.15-1741.30	1	7.6-h1		III	2035-2035.15	1-	24-39
	III	1752.30-1753	1-	21-39		III	2319.30-2320.15	1-	12-h1
	III	1753.30-1753.45	1-	27-h1		III	2337.30-2338	1-	16-h1
	III	1822-1822.45	1-	21-h1		III	2338.30-2339.15	1	12-h1
	III	1831.45-1832.30	1-	21-h1		III	2339.15-2340	1-	17-h1
	III	1841.45-1842.30	1-	21-h1		III	2342.30-2343.15	1-	17-h1
17	III	1844.30-1845	1-	21-h1	18	III	2348.30-2349	1-	23-h1
	III	1900-1901.15	1	8-h1		III	2357.15-2357.30	1-	23-h0
	III	1901.15-1902.30	1	8-h1		III	2412.30-2412.45	1-	24-34
	III	1903.30-1904.30	1	17-h1		III	2430.30-2431.30	1-	17-h1
	III	1916.45-1917.45	1-	25-39		III	2432.45-2433	1-	26-h1
	III	1918.45-1919.15	1-	23-h1		III	2433.15-2433.45	1-	17-h0
	III	1923.45-1924.15	1-	21-h1		III	2453.15-2454.15	1-	17-h1
	III	1945.30-1946.30	1-	8-h1		III	2454.45-2455.15	1-	23-h1
	III	1958.30-1959.30	1-	22-h1		III	2501.30-2502	1-	22-35
	III	2002.15-2002.45	1-	23-39		III	2503.30-2504.30	1-	17-h1
	III	2003.45-2004	1-	23-h1		III	2508-2510.30	1	17-h1
	III	2034.45-2035	1-	22-h1		III	2511-2511.30	1-	23-h1
	III	2044.15-2044.45	1-	16-h1		III	2531.15-2531.45	1-	17-h1
	III	2046-2049	1-	7.6-h1		III	2544.45-2545.30	1-	17-h1
	III	2103.15-2111	2	7.6-h1		III	2552.45-2553.15	1-	17-h1

COMMERCE - STANDARDS - BOULDER

c = many faint type III's not measured

SOLAR RADIO EMISSION SPECTRUM OBSERVATIONS

JUNE 1961

HAO BOULDER

7.6-41 Mc

Date 1961 ^a	Bursts			Frequency Range (mc)	Date 1961	Bursts			Frequency Range (mc)
	Type	Time (U.T.)	Intensity			Type	Time (U.T.)	Intensity	
16 Jun.	III	2600.15-2602.15	1-	17-h1	22 Jun	III	1927-1928d	1	7.6-37
17	III	2604.30-2604.45	1-	23-37		III	1933-1934d	1	7.6-h1
	III	1505-1505.45	1	22-h1		III	1942.15-1943	1-	7.6-h1
	III	1653.15-1654	1	8-h1		III	1951.30-1951.45	1-	20-h1
	III	1655.15-1656	1-	8-h1		III	1958-1958.15	1-	7.6-h1
	III					III			
18	III	1805-1806	1-	7.6-h1		III	1958.30-1958.45	1-	7.6-h1
	III	1806.45-1808.15	1-	8-h1		III	1959-1959.15	1-	7.6-h1
	III	1810.15-1811.45	1-	8-h1		III	2002.45-2003	1-	7.6-h1
	III	2053.30-2054	1-	17-h1		III	2004-2004.15	1-	7.6-h1
	III	2142.15-2142.45	1-	10-h0		III	2009.30-2010d	1-	7.6-h1
	III					III			
	III	2507.45-2508	1-	25-38		III	2015-2015.15	1-	23-h1
	III	1449.15-1449.45	1-	13-h1		III	2024-2024.15	1-	7.6-h1
	III	1528.15-1528.45	1-	25-h0		III	2030.45-2031	1-	7.6-h1
	III	1529.30-1530.45	1	8-h1		III	2039-2039.15	1-	7.6-h1
19	III	1709-1710.30	1	7.6-h1	23 ^c	III	2103.30-2103.45	1-	21-h1
	III					III			
	III	1725.30-1726.15	1-	16-h1		III	2122.45-2123	1-	22-h1
	III	1745.45-1747	1-	7.6-h0		III	2128-2128.15	1-	7.6-h1
	III	2322.45-2323	1-	16-h1		III	2206.30-2206.45	1-	20-h1
	III	2423	1	25-34		III	2243.15-2243.30	1-	15-h1
	III	2459	1-	21-38		III	2243.45-2244	1-	15-h1
	III					III			
	III	2516-2517	1	21-h1		III	2317.15-2317.30	1-	15-h1
	III	2519-2520	1	22-h1		continuum	61356-24410	1-	21-h1
20c	III	2535	1-	24-h1	23 ^c	III	14424-14424.30	1-	26-38
	III	1438.30-1441.30	1	12-h1		III	1505.45-1506.15	1-	24-h0
	III	1451.30-1452	1	20-h1		III	1522-1522.45	1-	22-h1
	III					III			
	III	1919-1920.30	1	7.6-h1		III	1524.45-1525	1-	33-h0
	III	1923	1	23-h1		continuum	1600-1635	1-	21-h1
	III	2035-2036	1	22-h1		III	1619.30-1621.30	1	8-h1
	III	2142-2142.15	1-	22-h1		III	1637.45-1638.15	1	16-h1
	III	2147.30-2149.30	1	7.6-h1		III	1641.15-1642	1	25-35
	III					III			
20c	III	2230.30-2231	1-	12-h1	23 ^c	III	1654.30-1655	1-	22-h1
	III	2322-2325	1-	22-31		III	1734.15-1734.45	1-	21-33
	continuum	1624-1650	1-	23-h1		III	1753.15-1753.30	1-	25-37
	III	1743.45-1744.15	1-	23-37		continuum	1800-1900	1-	22-h1
	III	2136-2136.30	1-	24-35		continuum	2002-2155	1-	25-h1
	III					III			
	III	2145.15-2145.30	1-	24-38		III	2143.30-2144	1-	25-h1
	III	2156-2156.30	1-	22-34		III	2145.15-2145.30	1-	25-33
	III	2233-2233.30	1-	24-39		III	2252.30-2252.45	1-	17-35
	III	2248.15-2248.30	1-	28-36		III	2312-2312.30	1-	26-35
21c	III	2329.30-2329.45	1-	22-36		III	2322.15-2322.30	1-	23-h1
	III				24c	III			
	III	1453.30-1453.45	1-	23-h0		III	2330-2330.15	1-	22-39
	III	1502-1502.45	1-	23-h0		continuum	2337-a2540	1-	21-h1
	III	1512.30-1512.45	1-	17-h1		continuum	1415-1425	1-	33-h1
	III	1640-1640.30	1-	21-39		III	1500-1500.30	1-	22-h0
	III	1729-1729.15	1-	18-h1		continuum	1505-1618	1-	20-h1
	III					III			
	III	1803.30-1803.45	1-	16-h0		III	1630.15-1630.30	1-	26-35
	III	1814.30-1814.45	1-	17-h0		III	1649-1649.45	1-	8-36
	continuum	1815-a2330	1	23-h1		III	1725.45-1726	1-	24-h1
21c	III	1816-1836.30	1-	20-h1	24c	III	1737.15-1737.30	1-	31-h0
	III	1900-1900.30	1	19-37		III	1928.45-1929.15	1-	25-33
	III					III			
	III	1901.15-1901.30d	1-	21-h1		III	2008.30-2008.45	1-	23-39
	III	1938.15-1938.45d	1-	8-39		III	2016-2016.30	1-	22-39
	III	2009.15-2009.30	1-	8-h1		III	2325.30-2326.15	1-	23-h1
	III	2014.45-2015	1-	23-34		III	2428-2428.30	1	22-h1
	III	2018-2019.15 d	1-	8-39		III	2443-2443.15	1-	29-h0
	III					III			
	III	2110	2	20-h1	25	III	2443.30-2444	1-	35-h1
22c	continuum	61353-1940	1-	19-h1		III	1400-1400.15d	1-	23-h1
	III	1646-1647	2	7.6-h1		III	1525.45-1526.15	1-	23-32
	III	1804-1805.30	1	7.6-h1		continuum	1845-1855	1-	24-36
	III	1846-1848	1	7.6-h1		III	1855-1855.30	1+	22-h1
	III	1850.30-1851.30	1	7.6-h1		III			

c = many faint type III's not measured
 o = no observations from 1907 to 2002
 d = harmonic structure

COMMERCE - STANDARDS - BOULDER

SOLAR RADIO EMISSION SPECTRUM OBSERVATIONS

IVI

JUNE - JULY 1961

HAO BOULDER

7.6-41 MC

Date 1961	Bursts			Frequency Range (mc)	Date 1961	Bursts			Frequency Range (mc)
	Type	Time (U.T.)	Intensity			Type	Time (U.T.)	Intensity	
25 Jun	III	2009-2009.30	1	22-38	13 Jul	III	1518.45-1519.30	1	17-41
	III	2018-2018.30	1	24-40		III	1609.30-1610	1	20-41
	III	2038.30-2039	1	25-40		III	1639.15-1640.15	1	12-41
	III	2039.15-2039.45	1	25-40		III	1722.30-1723	1	12-41
	III	2102.15-2103.15	1	25-38		III	2001-2001.15	1	21-41
	III	2106-2106.45	1	27-41		III	2032.15-2033	1	17-41
27	III	2130-2130.30	1	27-38		III	2033.15-2033.30	1	23-41
	III	2144-2144.5	3	22-31		III	2100.45-2101	1	22-41
28	III	2150-2150.45	1	12-41		III	2116.45-2117.15	1	21-37
	III	2133-2134	1	21-41		III	2155-2155.15	1	22-34
	III	2010.30-2011.45	1	11-35		III	2201-2201.15	1	23-34
29	III	1917.45-1918.15	1	16-41		III	2306.15-2306.30	1	19-35
	III	1922.30-1922.45	1	20-41		III	2308-2308.30	1	19-38
	III	1921-1921.15	1	7.6-41		III	2329.45-2330	1	20-41
	II	1956.30-2055	1+	20-35		III	2333-2333.30	1	20-36
	III	2010.30	1+	7.6-38		III	2336-2336.30	1	11-41
1 Jul	III	1613.45-1614	1	24-41		III	2337.45-2338	1	21-41
2	III	1820-1820.30	1	21-41		III	2340-2341.30	1+	11-41
	III	1821.30-1822.15	1	7.6-41		III	2351.30-2351.45	1	23-41
	III	1823-1823.15	1	30-41		III	2427-2428.15	1+	16-41
	III	1823.30-1825	1	7.6-41		III	2430-2432	1	16-41
3	III	1830.15-1830.30	1	21-41		III	2433.30-2434.30	1	16-41
4	III	2147-2147.45	1	24-41		III	2447.45-2448	1	21-41
	III	1833.15-1834	1	7.6-41		III	2454.45-2455	1	21-41
	III	1834.45-1835.30	1	7.6-41		III	2529.30-2529.45	1	19-36
	III	1849.45-1850.30	1	7.6-41		III	2530.45-2531	1	19-36
	III	1904.30-1904.45	1	7.6-41		III	2531.45-2532	1	16-41
	III	1918.30-1920	1	7.6-41		III	2537.45-2538	1	19-41
	III	1940.45-1941.15	1	7.6-41		III	2548.30-2548.45	1	23-41
	III	2119.30-2119.45	1	7.6-18		III	2616.30-2617.30	1	17-30
5	III	2122-2122.30	1	7.6-41	14	III	1641.45-1642	1	24-37
	III	1411.30-1412.15	1	13-27		III	1657-1657.15	1	27-37
	III	1413-1413.15	1	13-27		III	1658.45-1659	1	27-35
	III	1623.30-1626	1	9-19		III	1715-1715.15	1	21-41
	III	1721.45-1723.15	1	7.6-41		III	1740.15-1741.30	1	8-18
	III	1725.45-1727	1	7.6-41		III	1754.45-1755	1	21-41
	III	1807.30-1808	1	7.6-41		III	1804.45-1804.45	1	22-31
	III	1808.30-1809.15	1	7.6-41		III	1815.45-1816	1	21-30
	III	1952.30-1954	1	7.6-18		III	1922.15-1922.45	1	20-40
6	III	1538.15-1538.45	1	12-41		III	1955.30-1956	1	21-32
	III	1541.30-1544	1	7.6-41		III	2028.15-2028.30	1	22-32
	III	1738.15-1739	1	8-30		III	2030.30-2032	1	8-27
	III	1740-1741	1	8-30		III	2132.15-2132.45	1	20-30
	III	1745.45-1746.30	1	8-41		III	2202-2203	1	15-38
	III	1808.15-1809.15	1	8-26		III	2209.15-2209.30	1	20-36
	III	1812-1812.45	1	8-18	15c	III	1307-1307.15	1	15-37
	III	1816-1817	1	13-41		III	1309.45-1310	1	15-26
	III	1817-1818.30	1	24-41		III	1310.45-1311	1	15-30
	III	1835	1	31-41		III	1319-1319.30	1	18-39
	III	1856.15-1858	1	13-41		III	1323.30-1323.45	1	23-35
	III	1911-1911.45	1	9-28		III	1354.15-1354.45	1	13-32
7	III	2322.30-2324	1	16-41		III	1355.15-1356.30	1	17-31
9	III	2146.30-2148	1	8-41		III	2401.15-2401.30	1	17-33
	III	2148.30-2149.15	1	13-34		III	2412-2412.15	1	21-35
	III	2037.15-2039.30	1	8-18		III	2433.15-2433.30	1	7.6-41
	III	2039.30-2042.15	1	8-27		III	2434.15-2435	1	16-41
11	III	1656-1656.30	1	7.6-41		continuum	1435.30-1443	1+	7.6-41
	III	1659.30-1700	1	7.6-41		IV	1522-1803	3+	9-41
	IV	1702-2300	2+	9-41		continuum	1803-2453	1-	45-41
	III	1958.30-2000	1	7.6-41		III	1540.30-1542	2	9-27
12c	IV	21400-1925	1-	18-41		III	1753.30-1753.45	1	10-40
	continuum	1925-2105	1	18-41		III	1930.15-1930.45	1	15-31
	III	1947.45-1948	1	23-41		III	2053	1	7.6-37
	III	2057-2057.15	1	21-41	16c	III	1329-1329.15	1	13-21
13	continuum	21402-2302	1	21-41		III	1335.30-1335.45	1	17-30

c = many faint type III's not measured

CONTINUED - STANDARDS - BOULDER

SOLAR RADIO EMISSION SPECTRUM OBSERVATIONS

JULY 1961

HAO BOULDER

7.6 - 41 MC

Date 1961	Bursts			Frequency Range (mc)	Date 1961	Bursts			Frequency Range (mc)
	Type	Time (U.T.)	Intensity			Type	Time (U.T.)	Intensity	
16 Jul	III	1348.30-1348.45	1-	19-33	21 Jul	III	1553-1556.45	1-	8-18
	III	1450.15-1451	1-	13-32		III	1608.30-1608.45	1-	24-38
	III	1536.15-1537	1-	8-18		III	1619.45-1620	1-	24-33
	III	1545-1545.30	1-	9-17		III	1702-1703	1-	22-39
	III	1734-1735.45	1-	8-36		III	1707.15-1708	1-	10-20
	III	1737-1737.45	1-	8-29		III	1709.15-1710.45	1-	8-35
	continuum	1810-1823	1-	23-41		III	1711-1712	1-	8-41
	III	1938.30-1939	1-	24-41		III	1808-1817g	1-	29-37
	III	2027.15-2027.30	1-	23-34		III	1902.15-1903.30	1-	24-41
	III	2034.30-2034.45	1-	21-32		III	1903.45-1905.30	1	12-41
17c	III	1317-1317.30	1	15-41	22	III	1913.30-1913.45	1-	33-40
	III	1350-1351	1	15-41		III	1915.30-1918	1	14-41
	III	1617-1619.30	1-	9-38		IV	1936-1950.30	1-	25-41
	continuum	1636-1709	1-	25-38		III	1949-1949.30	1	22-40
	III	1925.30-1925.45	1-	7.6-41		III	2014.30-2014.45	1-	28-41
18c	III	2001.45-2002	1-	22-32	23c	III	2015.30-2016.30	1-	9-38
	continuum	21306-1800	1-	25-41		IV	2033-2055	1-	25-41
	III	1442.15-1443.15	1+	15-41		IV	2102-2117	1-	24-41
	continuum	1823-1954	1-	22-41		IV	2315-2324.8	1-	20-41
	III	1906.30-1906.45	1+	7.6-41		III	2330-2331	1	24-41
	III	1906.45-1909	1	7.6-41		III	1547-1549	1-	8-41
	III	1923-1923.30	1	7.6-41		III	1652.45-1653	1-	21-41
	III	1924-1924.30	1+	7.6-41		III	1659.30-1700	1-	17-40
	III	2011.30-2011.45	1	7.6-41		III	1702-1702.15	1-	22-40
	III	2027.45-2028	1	7.6-32		III	1706.15-1706.30	1-	26-41
19c	III	2234.45-2235	1-	7.6-32	24c	III	1714-1714.15	1-	26-41
	III	2309.30-2309.45	1	20-41		III	1952.15-1952.30	1-	21-31
	III	1325.15-1325.30	1-	27-41		III	2005.30-2005.45	1-	21-34
	III	1356.15-1356.45	1	13-41		III	2142.45-2143	1-	24-41
	III	1508.45-1509.30	1-	12-41		III	2154.15-2154.30	1-	23-41
	III	1658-1658.30	1-	21-37		III	2159.15-2201	1+	7.6-41
	continuum	1717-1750	1-	22-41		III	2226.30-2229.45	1+	8-41
	III	1712.30-1713.45	1-	21-35		III	2235-2236	1	8-41
	III	1715.15-1715.45	1-	21-40		III	2326.15-2327.15	1	11-41
	III	1725-1725.15	1-	27-41		III	2327.30-2328.45	1-	22-40
20	III	1729.45-1730.30	1-	21-41	24c	III	2335.45-2336.30	1	12-41
	III	1803-1804.45	1+	7.6-41		III	2356.30-2356.45	1-	24-40
	continuum	1809-1905	1-	21-41		III	2358.15-2358.30	1-	24-41
	III	1811-1812.30	1	7.6-34		III	2359.45-2400	1-	22-41
	III	1844.45-1846.15	1-	16-41		III	2409.45-2410.15	1-	22-41
	III	1915-1915.15	1-	23-41		III	2417.45-2418.15	1	17-41
	III	1955.15-1955.45	1-	17-41		III	2418.15-2419	1	17-41
	III	2140.30-2140.45	1-	24-38		III	2435.30-2435.45	1-	27-37
	III	2147.30-2148	1-	12-41		III	2440.15-2440.45	1	17-41
	III	2156.45-2158.15	1	7.6-41		III	2450.30-2451.15	1	17-41
21	III	1554.45-1600.15	3	8-41	24c	III	2517.15-2519.15	1-	17-41
	II	1600-1625e	3	20-41		III	2522.45-2523	1-	23-39
	IV	1620-1730	2	10-41		III	2527.45-2528	1-	25-38
	III	1745-1748f	3	25-32		III	1222.30-1223.15	1	11-41
	III	1749.30-1751.15	1+	7.6-41		III	1326.30-1326.45	1-	17-41
	III	1801.30-1802.30f	3+	21-27		III	1345.45-1346.30	1-	23-41
	III	1916-1916.45	1+	7.6-41		continuum	1357-2457	1-	20-41
	III	1917-1918	1+	7.6-41		III	1513.45-1514.15	1+	7.6-41
	III	1918-1918.45	1+	7.6-41		III	1519.45-1520.45	1+	7.6-41
	III	2006-2007.30	2	7.6-41		III	1558-1558.30	2	12-41
21	III	2257.30-2258	1	21-41	24c	III	1621-1622	1	7.6-41
	III	1421-1423	1-	21-30		III	1717.30-1717.45	1	7.6-41
	III	1423-1423.45	1-	21-41		III	1732.45-1733.15	1	7.6-41
	III	1500.45-1501.15	1-	21-41		III	1736.45-1738.15	2	7.6-41
	III	1515.30-1516	1-	22-34		III	1754.30-1755	1+	7.6-41

c = many main type III's not measured
e = many narrow band bursts superimposed
f = 1606-1706

f = amorphous structure
g = possibly type II

SOLAR RADIO EMISSION SPECTRUM OBSERVATIONS

IVn

JULY-AUGUST 1961

HAO BOULDER

7.6-41 MC

Date	Bursts			Frequency Range (mc)	Date	Bursts			Frequency Range (mc)
1961	Type	Time (U.T.)	Inten- sity		1961	Type	Time (U.T.)	Inten- sity	
24 Jul	III	1800.15-1800.30	1	7.6-h1	26 Jul	III	1933.45-1934	1-	21-h1
	III	1806.15-1806.30	1	7.6-h1		III	1946.30-1948	1-	8-h1
	III	1834-1835.45	2	7.6-h1		III	1950.30-1951.45	1	8-h1
	III	1838.45-1839.15	1+	7.6-h1		III	2003.30-2004	1-	14-h1
	III	1901.30-1902	1+	7.6-h1		III	2111.15-2111.30	1-	21-h1
	III	1903.30-1904	1+	7.6-h1		continuum	2300-2340	1-	21-h1
	III	2002-2003	1+	7.6-h1		III	2325.45-2326.30	1	17-h0
	III	2043-2043.30	1	7.6-h1		III	2336.45-2337	1-	22-38
	III	2052-2053	2	7.6-h1		III	2428.40-2429	1-	23-h1
	III	2429.30-2431	2	13-h1		III	2441-2441.30	1-	22-h1
25c	III	2454-2454.30	1+	16-h1	continuum	2523-2530	1-	28-h1	
	III	2456.45-2457	1	16-h1	III	2523.30-2523.45	1-	28-h1	
	III	2518-2519	2	17-h1	III	2526-2526.15	1-	28-h1	
	III	1220-1220.30	1	12-h1	III	2529.45-2530	1-	26-h1	
	IV	1300-2057.30	1-	22-h1	27	III	1924-1924.15	1-	27-h1
	III	1315.45-1316.15	1	12-h1	III	2006.30	1	31-h1	
	III	1328-1328.45	1	12-h1	III	2330.15-2330.30	1-	11-h1	
	III	1332.30-1333	1	16-h1	III	2346.30-2347	1	10-h1	
	III	1355.30-1356	1	12-h1	28	III	1405.15-1405.30	1	17-h1
	III	1409-1409.45	1	12-h1	29	III	2325-2326.15	1	17-h1
	III	1428.30-1429.15	1+	7.6-h1	30	II	1926-1932	1-	33-h1
	III	1452.45-1453.15	1	12-h1	III	1930.45-1931.15	1-	23-h1	
	III	1429.15-1429.30	1	7.6-h1	II	1942-1946	1+	35-h1	
	III	1533.45-1536	2	7.6-h1	IV	1946-2042	2	24-h1	
	III	1611-1612.30	1	7.6-h1	III	2238.30-2239	1-	21-h1	
	III	1632.45-1633	1	7.6-h1	31	III	1322-1322.15	1-	21-h1
	III	1637.30-1638	1	7.6-h1	III	1506-1506.45	1-	21-h1	
	III	1640.30-1642.45	2	7.6-h1	III	1507.45-1508.15	1-	21-h1	
	III	1644.15-1644.45	1+	7.6-h1	III	1734-1735.15	1-	24-34	
	III	1857.30-1859.15	2	7.6-h1	III	2028.15-2028.30	1-	24-h1	
	III	1859.30-1900.45	2	7.6-h1	III	2029.45-2030	1-	7.6-h1	
	III	1901.15-1901.45	1+	7.6-h1	III	2031.45-2032.15	1-	7.6-h1	
	III	1902.30-1903.15	1+	7.6-h1	III	2043.30-2044.15	1-	7.6-h1	
	III	2119.15-2119.45	1	7.6-h1	III	2046-2046.15	1-	20-h1	
	III	2127.30-2127.45	1-	23-h1	III	2140.15-2140.45	1-	29-h1	
	III	2203.30-2203.45	1-	20-38	III	2237.15-2237.30	1-	21-h1	
	continuum	2317.15-2441.15	1-	21-h1	2	III	1520.30-1521	1-	22-33
	III	1331.15-1332	1	17-h1	III	1544.45-1546	1-	9-h1	
	III	1353.30-1354	1-	17-h1	III	1546-1547.30	1-	12-h0	
	III	1358.45-1359.15	1-	20-h1	III	1553-1553.30	1	20-26	
	III	1416.45-1419.15	1-	22-h1	III	1744-1744.45	1-	22-39	
	III	1426.30-1427	1-	22-h1	III	1753-1754.30	1-	8-38	
	III	1435.45-1436	1-	21-33	III	1757.15-1757.30	1-	27-h1	
	III	1452.15-1452.45	1-	17-38	III	1842.15-1843.15	1-	20-h1	
	III	1457.15-1458	1-	13-33	3	III	1621.15-1622	1-	22-h1
	III	1458.30-1458.45	1-	25-38	4	III	1521-1521.30	1-	23-39
	III	1511.45-1512	1-	20-h0	5	III	1343.15-1343.30	1-	21-34
	III	1535-1535.45	1-	11-35	III	1444.30-1445	1-	20-36	
	III	1608.45-1609.30	1-	9-h1	III	1709.45-1710	1-	22-h1	
	III	1622.15-1622.30	1-	29-38	III	1710-1711	1	16-h2	
	III	1628-1628.15	1-	26-h1	III	1711-1711.30	1-	23-39	
	III	1653.15-1653.45	1-	13-h0	III	1726-1726.30	1-	21-h1	
	III	1742.30-1743	1-	23-h0	III	1730-1730.15	1-	27-h1	
	III	1819.30-1820	1-	12-h1	III	1507.15-1508	1-	12-h1	
	III	1837-1837.15	1-	22-39	III	1740.30-1741	1-	21-h1	
	III	1857.15-1858	1-	21-39	III	2010.45-2011.15	1-	16-h0	
	III	1901.45-1902	1-	21-39	III	2103.15-2103.30	1-	28-h0	
	III	1904.15-1905	1	9-h1	III	1913.15-1913.30	1-	21-h1	
	III	1914.45-1912.15	1-	17-h0	III	1237-1238.15	1-	15-h1	
	III	1922.15-1922.30	1-	23-38	III	1349.15-1349.30	1-	21-h1	
	III	1901.15-1902	1-	21-39	III	1913.15-1913.30	1-	21-h1	
	III	1904.15-1905	1	9-h1	III	1237-1238.15	1-	15-h1	
	III	1914.45-1912.15	1-	17-h0	III	1349.15-1349.30	1-	21-h1	
	III	1922.15-1922.30	1-	23-38	III	1913.15-1913.30	1-	21-h1	
	III	1901.15-1902	1-	21-39	III	1237-1238.15	1-	15-h1	
	III	1904.15-1905	1	9-h1	III	1349.15-1349.30	1-	21-h1	
	III	1914.45-1912.15	1-	17-h0	III	1913.15-1913.30	1-	21-h1	
	III	1922.15-1922.30	1-	23-38	III	1237-1238.15	1-	15-h1	
	III	1901.15-1902	1-	21-39	III	1349.15-1349.30	1-	21-h1	
	III	1904.15-1905	1	9-h1	III	1237-1238.15	1-	15-h1	
III	1914.45-1912.15	1-	17-h0	III	1349.15-1349.30	1-	21-h1		
III	1922.15-1922.30	1-	23-38	III	1913.15-1913.30	1-	21-h1		

c = many faint type III's not measured

COMMERCIAL - STANDARDS - BOULDER

SOLAR RADIO EMISSION SPECTRUM OBSERVATIONS

AUGUST 1961

HAO BOULDER

7.6-41 MC

Date	Bursts			Frequency Range (mc)	Date	Bursts			Frequency Range (mc)	
1961	Type	Time (U.T.)	Inten- sity		1961	Type	Time (U.T.)	Inten- sity		
8 Aug	III	1424.30-1424.45	1-	21-41	10 Aug	III	2052.15-2053.15	1-	20-41	
9	III	1426.15-1426.30	1-	23-41	III	2053.15-2053.45	1	20-41		
	III	1502.15-1503	1-	23-37	III	2055-2055.15	1-	20-41		
	III	1527-1527.30	1-	24-38	III	2114.45-2116	1+	7.6-41		
	III	1541-1541.15	1-	23-35	III	2122.30-2122.45	1-	21-41		
10c	III	1607.15-1607.30	1	20-41	III	2125-2125.15	1-	21-41		
	III	1609-1610.15	1-	12-41	III	2132-2132.15	1-	20-41		
	III	1646.15-1646.45	1-	27-36	III	2138.45-2139	1-	20-41		
	III	1648-1648.15	1-	22-33	III	2141.15-2141.15	1+	7.6-41		
	III	1838-1838.45	1-	8-41	III	2220.15-2220.45	1-	10-41		
	III	1937.45-1928	1-	23-41	III	2225.15-2225.30	1-	15-41		
	III	1931-1931.30	1-	26-38	III	2252.15-2253	1-	20-41		
	III	1931.30-1932.30	1	19-41	III	2308.15-2308.30	1-	16-41		
	III	2015-2015.30	1-	26-41	III	2310.30-2311	1	7.6-41		
	III	2154.30-2155d	1-	22-41	III	2315-2319	1	7.6-41		
	III	2203.45-2204	1-	22-28	III	2321.30-2322	1-	14-41		
	III	2307-2307.45d	1-	22-41	III	2326-2326.15	1	16-41		
	III	2319-2321.30	1-	22-33	III	2330-2343	1	21-41		
	III	1227-1228	1-	19-41	III	2338.30-2342	1+	17-41		
	III	1336.15-1336.45	1-	16-41	III	2359.30-2400	1	24-41		
	III	1346.30-1350.15	1	12-41	III	2408.30-2408.45	1-	16-41		
	III	1356.30-1359	1	17-41	III	2409-2411.30	1+	22-27		
	III	1407.30-1408	1	16-41	III	2424-2424.30	1	11-41		
	III	1413.45-1414.15	1	16-41	III	2446.30-2447.15	1	13-41		
	III	1414.45-1415	1-	16-41	III	2455.15-2557	1	13-41		
	III	1415.15-1415.45	1-	16-41	III	2516.30-2517.15	1	17-41		
	III	1416.15-1416.15	1	16-41	III	2522.30-2524.30	1	16-41		
	III	1427.45-1428.15	1	13-41	III	2525-2527	1	16-41		
	continuum	1431.30-1441	1+	7.6-41	11c	III	2527.15-2528	1	16-41	
	III	1445.15-1445.30	1	17-41		III	1235.30-1236	1-	17-26	
	III	1505-1508	1+	7.6-41	III	1240.30-1241.15	1-	15-41		
	III	1519.30-1519.45	1-	11-41	III	1256.15-1257.45	1-	16-41		
	III	1520.15-1520.30	1-	11-41	III	1258-1259	1-	15-41		
	III	1532.45-1536.30	1+	7.6-41	III	1300-1305.45	1+	9-41		
	III	1659-1659.15	1-	24-41	III	1305.30-1307	1	15-41		
	III	1719.45-1720	1-	7.6-41	III	1309.30-1310.45	1+	10-41		
	III	1723.30-1724.15	1-	7.6-31	III	1311-1311.30	1-	16-41		
	III	1735.45-1736.30	1-	7.6-25	III	1316.15-1317.30	1-	17-31		
	III	1739.30-1740	2	25-41	III	1317.30-1319	1-	22-41		
	III	1753.15-1754.15	1-	7.6-41	III	1322-1323	1	17-41		
	III	1756-1757	1+	23-31	III	1323-1324.45	1	17-41		
	III	1819.15-1819.30	1-	7.6-41	III	1357.15-1357.45	1-	13-29		
	III	1823-1823.15	1	7.6-41	III	1528.30-1529	1-	15-40		
	III	1823.45-1824.30	1	7.6-41	III	1632.30-1635	1+	7.6-41		
	III	1826-1826.30	1	7.6-41	III	1654.45-1655	1-	22-37		
	III	1826.45-1827	1-	7.6-41	III	1709.15-1710	1	8-41		
	III	1827.30-1828	1	7.6-41	III	1731-1731.15	1-	9-35		
	III	1830.15-1830.45	1-	7.6-41	III	1735.15-1736	1-	11-37		
	III	1832.45-1834	1-	7.6-41	III	1739.15-1740	1	20-41		
	III	1839.15-1839.45	1-	7.6-41	III	1743.15-1744.30	1	8-19		
	III	1858.30-1859	1	7.6-41	III	1744-1745	1-	8-41		
	III	1904.45-1905	1-	16-41	III	1823.15-1824.30	1-	14-40		
	III	1930-1930.30	1	7.6-41	III	1825.30-1826.45	1-	8-35		
	III	1947.30-1948	1	7.6-41	III	1826.45-1827	1-	21-34		
	III	1948.30-1949	1-	7.6-41	III	1833-1834.15	1-	15-41		
	III	1949.30-1950	1	7.6-41	III	1835-1835.15	1-	21-39		
	III	1950-1950.30	1	7.6-41	III	1838-1838.45	1-	16-39		
	III	1950.30-1952	1	7.6-41	III	1840.30-1841	1-	16-30		
	III	1954.45-1955	1-	7.6-41	III	1854.45-1855	1-	31-41		
	III	1959-2000	1	7.6-41	III	1919-1919.45	1	8-41		

c = many faint type III's not measured

COMMERCE - STANDARDS - BOULDER

SOLAR RADIO EMISSION SPECTRUM OBSERVATIONS

IVp

AUGUST 1961

HAO BOULDER

7.6-41 MC

Date 1961	Bursts			Frequency Range (mc)	Date 1961	Bursts			Frequency Range (mc)
	Type	Time (U.T.)	Inten- sity			Type	Time (U.T.)	Inten- sity	
11 Aug	III	1931-1932	1-	8-38	12 Aug	continuum	2141-2149	1-	21-39
	III	2044.30-2045	1-	21-41		III	2155.30-2156.15	1	21-41
	III	2051-2051.45	1-	8-35		III	2509.45-2510	1-	21-41
	III	2057.15-2058.30d	1	8-41		III	2517.45-2518	1-	28-41
	III	2131.15-2132	1	7.6-41		III	2529.15-2530.30	1-	17-41
	III	2132-2132.30	1	17-41		13c	1229.30-1230	1-	25-41
	III	2144.15-2144.30	1+	8-41		III	1249.30-1250	1	16-41
	III	2149-2149.30	1-	22-41		III	1252.30-1253	1	16-41
	III	2205-2205.15	1-	23-39		III	1257-1258.30	1	16-41
	III	2205.45-2206.15	1-	22-39		III	1259.15-1259.45	1-	16-41
12	III	2213.15-2213.45	1	18-41		III	1301-1301.30	1-	16-41
	III	2238.15-2238.45	1-	23-41		III	1327.30-1328	1	20-41
	III	2247.30-2248.30	1	12-41		III	1330.30-1330.45	1-	20-41
	III	2249-2249.30	1-	18-34		III	1331.20-1332.15	1-	20-41
	III	2321.15-2322.15	1	22-41		III	1332.15-1332.45	1-	20-41
	III	2327-2328.15	1	20-41		III	1333.15-1333.30	1-	20-41
	III	2344.45-2345	1-	22-41		III	1353.30-1354	1-	20-41
	III	2354.15-2355	1	17-41		III	1354.15-1354.30	1-	20-41
	III	2355-2355.30	1-	23-41		III	1356.15-1356.30	1	20-41
	III	2430-2435.30	1-	16-41		III	1356.45-1357	1	20-41
	III	2524.45-2525	1	17-41		III	1357.45-1358	1	20-41
	III	1306-1306.30	1-	21-41		III	1358.15-1400.30	1+	20-41
	III	1447.30-1448	1+	10-41		III	1404.15-1404.45	1-	20-41
	III	1449-1450.15	1-	21-41		continuum	1408-1415	1	20-41
	III	1509.30-1509.45	1	12-41		III	1513-1513.45	1	7.6-41
	III	1515.15-1515.30	1-	22-41		III	1516.30-1520	1+	7.6-41
	III	1517.30-1518.30	1	7.6-41		III	1612.15-1612.45	1	27-41
	III	1518.45-1520	1	7.6-41		III	1619.15-1619.30	1	21-41
	III	1531-1535.30	1	11-41		III	1643.15-1643.30	1	7.6-41
	III	1601.45-1602	1	17-41		III	1649-1649.15	1+	10-41
	III	1611-1617	1+	7.6-41		III	1651.15-1651.45	1-	7.6-41
	II	1621-1638	1+	7.6-41		III	1653.15-1653.30	1	23-41
	III	1626.30-1633.30	3+	7.6-41		III	1654-1654.15	1	23-41
	III	1705.15-1705.30	1-	23-41		III	1749.15-1749.30	1	21-41
	III	1707-1707.15	1-	21-41		III	1817.45-1818.15	1+	7.6-41
	III	1710.30-1716.15	2	7.6-41		III	1819.15-1819.30	1-	16-41
	III	1717.45-1718	1-	7.6-41		III	1821.45-1822.30	1-	16-41
	III	1718.45-1719.15	1-	7.6-41		III	1906-1906.45	2	7.6-41
	III	1720.15-1723	2	7.6-41		continuum	1907.45-1913	2	7.6-41
	III	1725.15-1725.30	1	7.6-41		III	1916.30-1917	1-	25-41
	III	1726.45-1727	1-	23-41		III	2005.15-2005.30	1-	21-41
	III	1731.45-1732	1-	21-41		III	2015-2015.15	1-	21-41
	III	1734.15-1735	1	21-41		III	2030-2030.30	1-	21-41
	III	1809-1810	2	8-20		III	2048-2048.30	1+	7.6-41
	III	1811.15-1812.45	1+	7.6-41		III	2108.30-2109	1-	20-41
	III	1845-1846.15	1-	21-41		III	2200.30-2201	1-	21-41
	III	1901.30-1901.45	1-	22-41		III	2206.30-2207	1-	21-41
	III	1902-1902.15	1-	22-41		III	2238.30-2239	1-	23-41
	III	1908.15-1909.15	1-	21-41		III	2242-2242.15	1-	23-41
	III	1942-1950	1	7.6-41		continuum	2311-2501	1-	23-41
	III	1956.15-1959	1	7.6-41		III	2456.30-2500.30	2	15-41
	III	2003-2005	1-	9-41		III	2526.30-2527	1-	21-41
	III	2006.15-2006.30	1	9-41		continuum	21224.30-2525	1	21-41
	III	2148.45-2149	1-	16-41		III	1731.30-1732.45	2	7.6-41
	III	2206.30-2206.45	1-	24-41		III	2237.30-2237.45	2	13-41
	III	2236-2236.15	1-	21-41		15c	2330.30-2331.30	2	16-41
	III	2255.30-2256	1	11-41		continuum	1508.45-2525	1-	22-41
	III	2302-2307.45	1-	16-41		III	1646.15-1650	2	9-41
	III	2310.30-2313.45	1	16-41		III	1650.15-1651.30	1	9-39
	III	2357.15-2357.45	1	16-41		III	1659.45-1701.30	1	9-41
	III	2400-2400.15	1-	23-41		III	1703.15-1705	1	12-41
	III	2415.30-2416.30	1	16-41		III	1716.15-1722.30	1	21-41
	III	2430-2432	1	16-41		III	1726.30-1727	1	27-41
	III	2438.15-2438.30	1-	22-41		III	1728-1729	1	9-41
	III	2438.15-2438.30	1-	22-41		III	1730.15-1731.30	1	21-41

* may have extended to 7.6 mc after 1700

COMMERCE - STANDARDS - BOULDER

SOLAR RADIO EMISSION SPECTRUM OBSERVATIONS

AUGUST 1961

HAO BOULDER

7.6-41 MC

Date	Bursts				Date	Bursts			
1961	Type	Time (U.T.)	Intensity	Frequency Range (mc)	1961	Type	Time (U.T.)	Intensity	Frequency Range (mc)
15 Aug	III	1806.30-1807	1	16-41	25 Aug	III	1454.45-1455	1-	21-38
	III	1810.15-1810.45	1	9-41		III	1457-1457.15	1	22-41
	III	1812.15-1813	1	23-41		III	1520-1520.15	1	22-41
	III	1815-1817	1	9-41		III	1647.15-1648	1-	12-41
	III	1906-1908.15	1+	9-41		III	1753-1753.30	1-	9-41
	III	1936-1937.15	1	9-41		continuum	1821-2200	1-	21-41
	III	2018.15-2019.30	1+	10-41		continuum	2230-2243	1-	21-40
	III	2030-2031	1+	11-41		continuum	2248.30-2257	1-	21-41
	III	2031-2032.15	1+	11-41		continuum	2300-2501.15	1-	21-41
	III	2033.45-2035.15	1	11-41		continuum	2307-2500	1-	19-41
16c	III	2044.45-2045.30	1	22-41	26c	III	1537.30-1538	1-	16-39
	III	2338.45-2340	1+	22-41		III	1617.15-1617.45	1-	16-41
	III	2357-2357.45	1	16-41		III	1626-1626.30	1-	22-36
	III	2359.45-2400.30	1+	16-41		III	1653.30-1654.30	1-	8-33
	continuum	24233-24540	1	21-41		III	1721.15-1721.45	1-	22-40
	III	1340-1341	2	16-41		III	1747.30-1748.30	1-	21-41
	III	1411.15-1412.15	2	21-41		III	1752.15-1752.45	1-	22-36
	III	1425.30-1426.15	2	23-41		III	1753.15-1754	1-	23-35
	III	1434-1435	2	22-41		III	1754.15-1754.45	1	21-33
	III	1515.30-1516.45	1+	12-41		III	1800-1801	2	8-41
17	III	1641-1645	1+	16-41	27	III	1803-1804	1-	8-40
	III	1747.30-1750	1+	9-41		III	1815.45-1816.15	1	20-36
	III	1826.15-1829.30	1+	9-41		III	1834.15-1834.45	1-	23-36
	III	1923-1925	2	9-41		III	1840-1840.45	1-	8-37
	III	2002.15-2003	1+	9-41		III	1901.30-1902.30	1-	8-41
	III	2013-2014.30	1	9-41		III	1929.15-1930.15	1	8-37
	III	2030.45-2033.30	1+	9-41		III	1932-1933	1-	8-36
	III	2324.15-2326	2	22-41		III	1938.15-1938.45	1-	20-36
	continuum	1500-2057	1-	21-41		III	1951.45-1953	1-	8-36
	III	1656.45-1657.15	2	15-41		III	2014-2014.30	1-	20-34
18c	III	2104.30-2108.30	2+	9-41	28	III	2050-2050.15	1-	21-41
	III	2109-2110.30g	2	32-35		III	2120.15-2120.45	1-	21-40
	IV	2130-2155	1	26-41		III	2154.30-2155	1-	16-30
	continuum	2150-2501	1-	23-41		III	2212.45-2213.15	1-	16-40
	III	1326-1326.15	1-	23-38		III	2222.30-2223	1-	16-36
	III	1359.45-1400	1-	26-37		III	2253.45-2254.30	1	13-38
	III	1400.15-1400.30	1-	24-34		III	2306.45-2307.15	1-	21-36
	III	1402-1402.15	1-	23-38		III	2338.45-2339.15	1-	21-39
	III	1505-1505.15	1	22-34		III	2351.45-2352.15	1-	21-39
	III	1624.30-1627	1-	23-36		III	2421.45-2422.15	1-	22-36
19	III	1638-1638.15	1-	11-36	29	III	1915-1915.30	1-	21-35
	III	1640.15-1640.30	1-	26-37		III	1922.15-1922.30	1-	23-32
	III	1710.15-1710.30	1	22-35		III	2302.30-2303	1-	22-41
	continuum	2035.30-2048.30	2+	10-41		III	2320.45-2321.15	1-	22-40
	III	2049.15-2049.30	1-	26-40		continuum	2328.30-2358.30	1-	22-40
	III	2050.15-2052	2	20-41		III	1312-1312.15	1	21-36
	II	2051-211.6	3	22-41		III	1606.30-1607	1-	22-41
	IV	2135-2155	1-	26-41		III	2128-2128.15	1-	22-41
	III	2305.45-2306.30	1	24-41		III	2130.15-2130.30	1-	22-41
	III	2329.15-2329.45	1-	24-41		III	2146.15-2146.30	1-	27-41
20	III	2055.15-2055.45	1	29-41	30	III	2149-2149.15	1-	22-41
	III	2200-2200.15	1-	22-34		III	2308.30-2309	1-	25-34
	III	2140-2142	1-	11-40		III	2351-2351.15	1	23-41
	III	2144.15-2147.45	1	10-41		III	1602.30-1603	1	21-31
	III	2146-2146	1	11-41		III	1610-1610.45	1	7.6-41
	III	2120-2120.15	1-	29-41		III	1837-1837.15	1-	27-41
	III	2122.45-2125.15	1+	7.6-41		III	1916.30-1916.45	1-	21-33
	III	2125.15-2127	1	11-41		III	1941.15-1941.30	1-	21-39
	III	2130-2131.30	1-	25-41		III	1959.30-2000	1+	7.6-41
	III	1611-1611.15	1-	27-38		III	2000.15-2000.30	1+	7.6-41
21	III	1846.45-1847.30	1	15-40	31	III	2001-2001.30	1+	7.6-41
	III	2233.30-2235	1-	20-38		III	2003.15-2003.30	1	7.6-41
	III	1416.15-1416.30	1	18-36		III	2125.45-2126	1-	23-41
	III	1420-1422	1	19-36		III	2126-2126.15	1-	23-41
	III	1423-1425	1+	15-41		III	2146-2146.15	1	21-41

c = possibly type II

COMMERCIAL - STANDARDS - BOULDER

SOLAR RADIO EMISSION SPECTRUM OBSERVATIONS

IVr

AUGUST-SEPTEMBER 1961

HAO BOULDER

7.6-41 MC

Date	Bursts				Date	Bursts			
	Type	Time (U.T.)	Intensity	Frequency Range (mc)		Type	Time (U.T.)	Intensity	Frequency Range (mc)
29 Aug	III	2157.45-2158	1	21-41	3 Sep	III	1813-1813.15	1-	26-41
	III	2159.15-2159.30	1-	21-41		III	1944.30-1945	1-	30-41
	III	2159.45-2200	1-	21-41		III	1945-1945.45	1	28-41
	continuum	2201-2223	1	23-36		continuum	2016-2025	1	28-41
	III	2203.30-2205	1-	21-41		III	2020-2022.15	2	21-41
30	III	2205.15-2205.45	1	21-41		III	2024-2024.15	1	20-41
	III	1529.45-1530	1-	23-40		III	2042-2042.30	1-	24-35
	III	1619.30-1619.45	1-	21-40		II	2053.30-2113.30	1+	30-41
	III	1630.15-1631.30	1+	7.6-41		III	2150-2150.15	1	21-41
	III	1631.45-1632.15	1	7.6-41		III	2150.15-2153	1-	20-41
	III	1632.45-1633.30	1-	7.6-41		III	2257-2258	1+	21-41
	III	1633.45-1634	1	22-41		III	2346-2346.30	1-	17-40
	continuum	1650-1754	1-	18-41	4	III	1435.15-1437.15	1+	16-41
	continuum	1754-1910	2	7.6-41		III	1446.15-1446.30	1	22-40
	III	1905-1907	2	7.6-41		III	1610.45-1611.30	1	14-40
	III	1929.30-1931	1	19-36		III	1621.30-1622.30	1-	10-38
	III	1931-1931.15	1-	29-41		III	1646.15-1647.30	1+	8-41
	III	1942.30-1943	1-	22-32		III	1733.15-1734	1	8-41
	continuum	2015-2100	1-	12-41		III	1827.45-1828	1-	25-39
	III	2023.30-2024.30	1+	8-41		III	1842.45-1843.15	1	21-32
31	III	2253.30-2254	1-	20-40	5	III	2250.45-2251	1-	31-38
	III	1446.45-1447.15	1	19-41		III	1445.15-1446	1-	23-40
	III	1716.30-1718	1+	8-41		III	1454.45-1455	1	23-36
	III	1733-1733.30	1-	8-41		III	1458-1458.30	1-	21-41
	III	1918.30-1919	1-	16-32		III	1458.45-1459	1-	29-41
1 Sep	continuum	1540-1540P	1	20-41		III	1549.15-1549.30	1	23-36
	continuum	1540-1555P	1-	20-35		III	1711.30-1712.154	1	16-41
	III	1837.30-1838	1-	18-36		III	1719.30-1750.45	1	14-41
	III	1838.30-1838.45	1-	25-40		III	1844.45-1845.30	1	22-40
	III	1857-1857.30	1-	24-41		III	1846.15-1848.30	1+	8-41
	III	2049.30-2050	1+	22-41		III	1855.15-1855.30	1	23-41
	III	2051.45-2052.15	1+	27-41		III	2318.30-2319.30	1+	13-41
	III	2156-2156.30	1-	23-41	6	continuum	1738-2254P	3	20-41
	III	2158.30-2159	1+	25-41	7x 2	III	1315.15-1316	1	22-41
	III	2200-2202.45	2	11-41	8	III	1601.45-1605.45	1+	11-41
2	III	2241.15-2242.15	1-	21-41		II	1601.45-1630	3	11-41
	III	1310-1310.15	1-	24-41		IV	1606.30-1730	2	20-41
	III	1325.45-1326	1-	21-35		III	1608-1609.30	2	13-41
	III	1350.30-1351	1-	31-41		III	1610-1612	1+	20-41
	III	1403-1403.30	1	25-41	9	continuum	15308-1535r	1+	20-41
	III	1403.45-1404.15	1+	21-41		III	2128.45-2129	1-	22-35
	III	1405.15-1405.30	1	24-41	10	III	1712.30-1712.45	1-	24-37
	III	1406.45-1408	2	19-41		III	1927.30-1930	1-	8-34
	III	1410-1413	2+	12-41		III	1931.15-1932.15	1-	8-39
	III	1414.45-1418	2	16-41		III	1933.15-1935	1-	8-41
	III	1431.45-1435.30	2+	11-41		II	1935.15-2038	2	7.6-41
	III	1625.30-1627	1-	20-38		IV	2013-2154	1+	21-41
	continuum	2030-2037	1-	19-41		III	2114-2114.45	1	13-41
	III	2032.15-2033.15	1+	20-41	11	III	1953.45-1954	1-	21-41
	III	2043.30-2108	1	20-41	12	III	2212.15-2212.30	1-	24-41
	III	2201.15-2202.45	2	10-41		III	2217-2217.15	1-	24-41
	III	2231.30-2232	1-	22-29		III	2224-2224.15	1-	24-41
	III	2237.45-2238.30	1-	22-36		III	2226.45-2227	1-	24-41
	III	2238.45-2240	1+	12-41	13	III	1605.15-1605.30	1-	24-41
	III	2258-2259	1	16-41		III	1614.15-1614.30	1-	24-41
3	III	2359-2359.30	1-	27-39		III	1620-1620.30	1-	24-41
	III	1428.45-1431	1+	24-41		III	1742.30-1743.30	1	7.6-41
	III	1515.30-1516.30	1-	24-41		III	1940.30-1940.45	1-	22-41
	III	1518-1519.15	1	23-41		III	1944.15-1944.30	1-	22-41
	III	1807.15-1808	1	26-41		III	2204.15-2204.45	1-	7.6-41

c = many faint type III's not measured
p = faint burst structures superimposed

r = no bursts superimposed
x = no observations 1549-2335
COMMENCE - STANDARDS - BOULDER

SOLAR RADIO EMISSION SPECTRUM OBSERVATIONS

SEPTEMBER - OCTOBER 1961

HAO BOULDER

7.6-41 MC

Date	Bursts				Date	Bursts			
1961	Type	Time (U.T.)	Intensity	Frequency Range (mc)	1961	Type	Time (U.T.)	Intensity	Frequency Range (mc)
13 Sep	III	2210.15-2210.30	1-	23-41	27x ⁵ Sep	III	1543.45-1547.15	2	7.6-41
	III	2332.30-2332.45	1-	25-41	III	1604-1608.45	2	7.6-41	
	III	2400.45-2401.15	1	23-41	IV	1617-1640	1-	26-41	
	III	2419.45-2420	1-	22-41	III	1721.30-1722	1-	20-41	
	III	2426-2426.15	1-	22-41	III	1742.15-1742.45	1-	20-41	
	III	2426.30-2426.45	1-	22-41	III	1754.30-1755	1	7.6-41	
	III	2427.15-2427.30	1-	22-41	III	1802.30-1802.45	1-	7.6-41	
	III	2427.45-2428	1-	22-41	III	1805.30-1806.15	1+	7.6-41	
14	III	1816-1816.45	1	7.6-41	III	1844.45-1845	1-	20-41	
15	III	1451-1451.15	1-	21-41	III	1858.15-1858.45	1+	12-41	
	III	1502-1502.30	1-	27-41	III	1901.45-1902	1-	20-41	
	III	1931.45-1932	1	24-41	III	1904.30-1915	1+	7.6-41	
	III	2130.15-2130.30	1-	31-41	III	1923-1923.15	1-	7.6-41	
16	III	1413.15-1413.30	1	22-41	III	1952.45-1956.15	2	7.6-41	
	III	1413.45-1414	1	22-41	III	1959.15-1959.30	1-	7.6-41	
	continuum	1525-1531	1	16-41	II	2001.30-2015	1+	25-41	
	continuum	1543.30-1628	1-	22-41	III	2010-2010.45	2	15-41	
	III	1609.45-1610	1+	22-41	III	2012-2012.30	2+	10-41	
	III	1614.15-1614.30	1+	22-41	III	2015-2015.15	2	18-41	
17	III	1902.15-1902.30	1-	21-36	III	2039.30-2040	1	12-41	
	III	2103.45-2104	1-	21-36	III	2040.30-2041	1	12-41	
18	III	1612-1613	1	22-38	III	2041.15-2042	1	12-41	
	III	1902.45-1903.30	2	10-41	III	2132-2132.15	1-	24-41	
	III	2002.30-2003	1+	12-41	III	2144.30-2144.45	1-	22-41	
19x ³	III	1335.15-1335.30	2	24-41	III	2155.45-2156.30	1-	16-41	
23c	continuum	1404-1417	1-	23-41	III	2157.30-2157.45	1-	16-41	
	III	1906.15-1906.45	1-	22-41	III	2242.45-2243	1-	23-41	
	III	1906.30-1909.15	1-	22-41	continuum	1432-2244.30	1-	21-41	
	III	2247.30-2248	1-	21-41	III	2026-2026.15	1+	16-41	
24x ¹	III	1326-1326.15	1	15-31	III	2036.30-2027	1+	16-41	
	III	2113.30-2113.45	1-	10-34	III	2102.15-2103	1+	16-41	
25	III	1548-1548.30	1-	19-41	III	2113-2113.45	1+	21-41	
	III	1603-1603.15	1+	21-35	III	2114.15-2114.45	1+	21-41	
	III	1743.30-1745.15	1-	20-41	III	2131-2131.30	2	16-41	
	III	1747-1748	1-	20-41	III	2135-2135.30	1+	21-41	
	III	1927.15-1930.15	1+	7.6-41	III	2212-2212.30	2+	16-41	
	III	2135.15-2135.30	1-	21-29	IV	2214.30-2358	2+	14-41	
	III	2141.15-2141.30	1	22-41	II	2217-2219	3+	15-41	
	III	2357.45-2358	1	33-41	III	2308-2308.15	2	16-41	
26	III	1400.30-1400.45	1	10-41	III	2342.45-2343	1+	22-41	
	III	1648.15-1648.30	1	7.6-41	29c	continuum	1445-2350	1-	21-41
	III	1658.45-1658.30	1-	23-41	30c	continuum	1435-2345	1	22-41
	III	1658.45-1659	1-	23-41	III	1510.45-1511.30	2+	15-41	
	III	1803.30-1803.45	1	9-15	III	1545.15-1545.30	1-	23-41	
	III	1915-1915.15	1-	24-41	III	1632.30-1633	1-	16-34	
	III	1918.15-1918.30	1-	7.6-41	III	1711.30-1718.30	1-	19-41	
	III	1922.30-1922.45	1-	26-38	III	1523.15-1523.30	1	18-41	
	III	1936.15-1936.30	1-	7.6-41	7	III	1910.15-1910.30	1-	22-41
	III	1948-1948.15	1-	7.6-41	8	III	1906-1907.15	1-	22-41
	III	1951-1952.15	1-	7.6-41	continuum	1512-1518	1	22-41	
	III	1954-1954.15	1-	20-41	III	1708.15-1708.30	1-	22-33	
	III	2004.45-2005	1-	22-41	9	continuum	1338-1415	1-	24-41
	III	2019.15-2019.30	1-	12-41	II	1415.45-1419.15	1-	24-41	
	III	2048-2048.30	1	12-41	III	2008.30-2008.45	1-	33-41	
	III	2149-2149.15	1-	16-41	III	2013-2013.30	1-	29-41	
27	III	1407.15-1409.15	1	12-41	III	2032.15-2032.30	1-	28-34	
	III	1414.15-1414.45	1-	12-41	continuum	2206-2327	1-	25-41	
	III	1428.45-1429.15	1-	24-41	III	2209.45-2210	1-	25-41	
	continuum	1436.30-1442	1+	13-41	III	2215.45-2216	1-	25-41	
	III	1516.15-1516.45	1-	22-41	III	2216.15-2216.30	1-	25-41	

x3 = no observations 1503/19 Sep to
1304/23 Sep

x4 = no observations 1512-1617 and 1910-2023
x5 = no observations from 2206-2232

COMMERCE - STANDARDS - BOULDER

SOLAR RADIO EMISSION SPECTRUM OBSERVATIONS

IVt

OCTOBER 1961

HAO BOULDER

7.6-41MC

Date 1961	Bursts			Frequency Range (mc)	Date 1961	Bursts			Frequency Range (mc)
	Type	Time (U.T.)	Inten- sity			Type	Time (U.T.)	Inten- sity	
9 Oct	III	2242.30-2242.45	1-	25-41	19 Oct	III	2221.45-2222	1	22-41
	III	2243.30-2243.45	1-	25-41		III	2226.30-2226.45	1	22-41
	III	2248-2248.30	1-	25-41		III	2022.45-2023.30	1-	29-41
11	III	2305-2305.15	1	26-41	28	III	1752.45-1753.15	1-	12-41
	III	2307.15-2307.30	1-	29-41		III	2006-2007	1+	7.6-41
18	III	1920-1920.30	1-	28-41	29	III	2106.30-2106.45	1-	23-41
19	III	1957.15-1957.30	1-	22-41		III	2123.15-2123.30	1	21-41
	III	2002.30-2002.45	1-	22-41		III	2123.45-2124	1	21-41
	III	2057-2057.30	1-	26-39		III	2125-2127.30	2	7.6-41
	III	2111.30-2111.45	1	22-41		III	2220.15-2220.30	1-	21-41
	III	2207.15-2207.30	1	23-41		III	2239.45-2240	1	21-41
	III	2207.30-2207.45	1-	23-41		III	2045-2046.15	1	21-41
	III	2221.15-2221.30	1-	25-41					

COMMERCE - STANDARDS - BOULDER

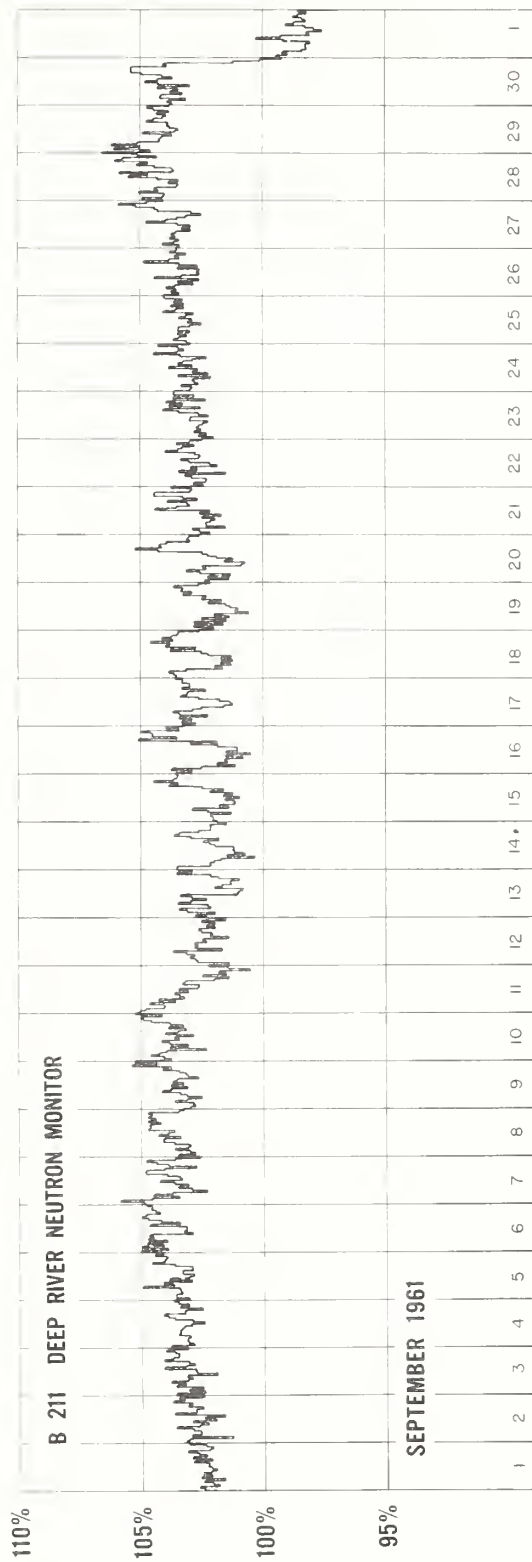
COSMIC RAY INDICES
(Climax Neutron Monitor)

SEPTEMBER 1961

Sept. 1961	Daily average counts/hr.	Sept. 1961	Daily average counts/hr.
1	2987.9	16	2964.0
2	2996.0	17	2978.9
3	2978.8	18	3005.1
4	3001.6	19	2979.6
5	3004.5	20	2992.6
6	3021.9	21	2986.2
7	3012.3	22	2988.3
8	3005.7	23	2980.9
9	3014.7	24	2990.0
10	3023.8	25	3003.0
11	2995.2	26	3002.8
12	2974.9	27	3010.7
13	2965.7	28	3017.8
14	2963.8	29	3013.7
15	2963.6	30	3030.3

COMMERCE - STANDARDS - BOULDER

COSMIC RAY INDICES
(Pressure Corrected Hourly Totals)



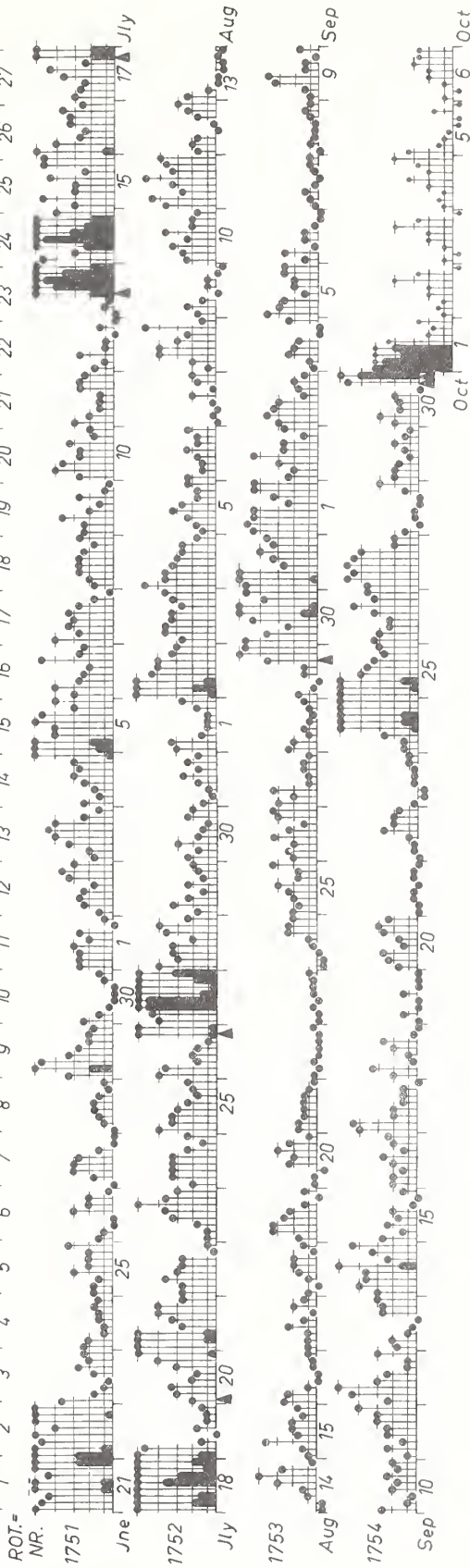
GEOMAGNETIC ACTIVITY INDICES

SEPTEMBER 1961

Sept. 1961	C	Values Kp								Sum	Ap	Final Selected Days
		Three hour Gr. interval										
		1	2	3	4	5	6	7	8			
1	1.2	4+	5-	4+	4+	2+	3+	4+	4+	32o	28	Five Quiet
2	0.8	2+	2o	3o	4+	3-	3-	1+	3-	21o	13	
3	0.6	3o	4-	3+	3o	1+	2-	2o	1+	19+	12	
4	0.3	1-	1o	2+	2o	2-	0+	0+	2+	11-	5	
5	0.6	4-	3o	3-	1+	2o	2o	3-	3-	20o	12	
6	0.1	1+	3-	1-	1+	1+	1-	0+	0+	9-	5	19
7	0.0	1-	1o	1+	1-	0+	1-	1o	1o	7-	4	21
8	0.0	0+	1o	1-	1-	1-	1o	1+	1o	7-	4	23
9	0.5	1o	1+	3+	4-	1+	1+	1-	2-	14+	8	
10	0.4	3-	1o	1-	2o	2-	2+	2-	2o	14o	7	
11	0.7	1o	2+	1+	2+	2+	3o	3o	4o	19+	12	Five Disturbed
12	0.8	2+	4+	5o	3o	2+	1o	1o	3o	22o	17	
13	0.5	2-	2o	1o	1-	0+	3-	3-	3o	14o	8	
14	1.3	3o	4o	4-	4-	6o	2+	3+	4+	30+	28	
15	0.3	3-	1+	2+	2-	2o	1-	0+	1+	12+	6	
16	0.4	2o	2o	1+	2o	3-	1+	2o	2+	16-	7	14
17	0.5	4o	4+	2o	2o	1+	1+	1+	0+	17-	11	24
18	0.2	2o	3+	1-	1o	2o	3-	1-	0+	13-	7	25
19	0.0	0+	1+	0+	0+	1+	0+	0+	0+	5-	3	30
20	0.5	2-	2+	3-	1+	2-	3-	3o	2+	18-	9	
21	0.0	0+	0+	1-	1-	0+	1-	1-	0+	4o	2	Ten Quiet
22	0.3	0+	1-	1-	1o	3-	2o	2o	2-	11o	6	
23	0.1	1-	0o	0o	1-	1-	1-	1o	1o	5-	2	
24	1.5	1+	1+	3-	5+	6o	6o	5o	5o	33-	42	
25	1.3	5o	5+	6o	4o	4-	3+	3-	3o	33o	35	
26	0.9	3+	3o	2+	2+	3+	4+	3+	4-	26-	18	7
27	1.1	4-	5-	4+	5-	4+	4o	2o	2o	30-	26	8
28	0.2	1+	0+	1-	1-	0+	0+	1+	3o	8o	5	19
29	0.2	2o	2o	2-	1o	1+	2o	1+	1o	12+	6	21
30	1.3	2o	3o	2-	2-	2o	0+	5-	8o	23+	36	22
												23
												28
												29
Mean:	0.55									Mean:	13	

COMMERCE - STANDARDS - BOULDER

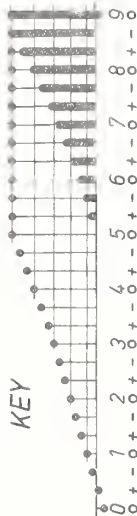
DAYS IN SOLAR ROTATION INTERVAL



PLANETARY MAGNETIC THREE-HOUR-RANGE INDICES

Kp till 1961 Sept. 30
(Ks from Wingst and Göttingen till Oct. 16)

▲ = sudden
commencement



J.B.

COMMERCE - STANDARDS - BOULDER

CRPL RADIO PROPAGATION QUALITY FIGURES AND FORECASTS SEPTEMBER 1961

NORTH ATLANTIC

NORTH PACIFIC

DATE SEPT. 1961	NORTH ATLANTIC 6-HOURLY QUALITY FIGURES				SHORT-TERM FORECASTS ISSUED ABOUT ONE HOUR IN ADVANCE OF				WHOLE DAY INDEX*	ADVANCE FORECASTS (1-7 REPORTS) FOR WHOLE DAY, ISSUED IN ADVANCE OF				GEOMAGNETIC K _p		NORTH PACIFIC 12-HOURLY QUALITY FIGURES				SHORT-TERM FORECASTS ISSUED AT		WHOLE DAY INDEX*	ADVANCE FORECASTS (1-7 REPORTS) FOR WHOLE DAY, ISSUED IN ADVANCE OF				GEOMAGNETIC K _s																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
	00	06	12	18	00	06	12	18		1-7 FINAL	1-7 Jc	1-3 Jc	1-7 SOW	1-7 J	HALF DAY INDEX	0700	1900	TO 1900	TO 0700	0600	1800		1-7 FINAL	1-7 Jc	1-3 Jc	1-7 SOW	1-7 Jp	HALF DAY INDEX	0700	1900	TO 1900	TO 0700																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
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Score: Quiet Periods P 14 6 19 17
S 11 9 10 13
U 0 0 0 0
F 0 0 1 0

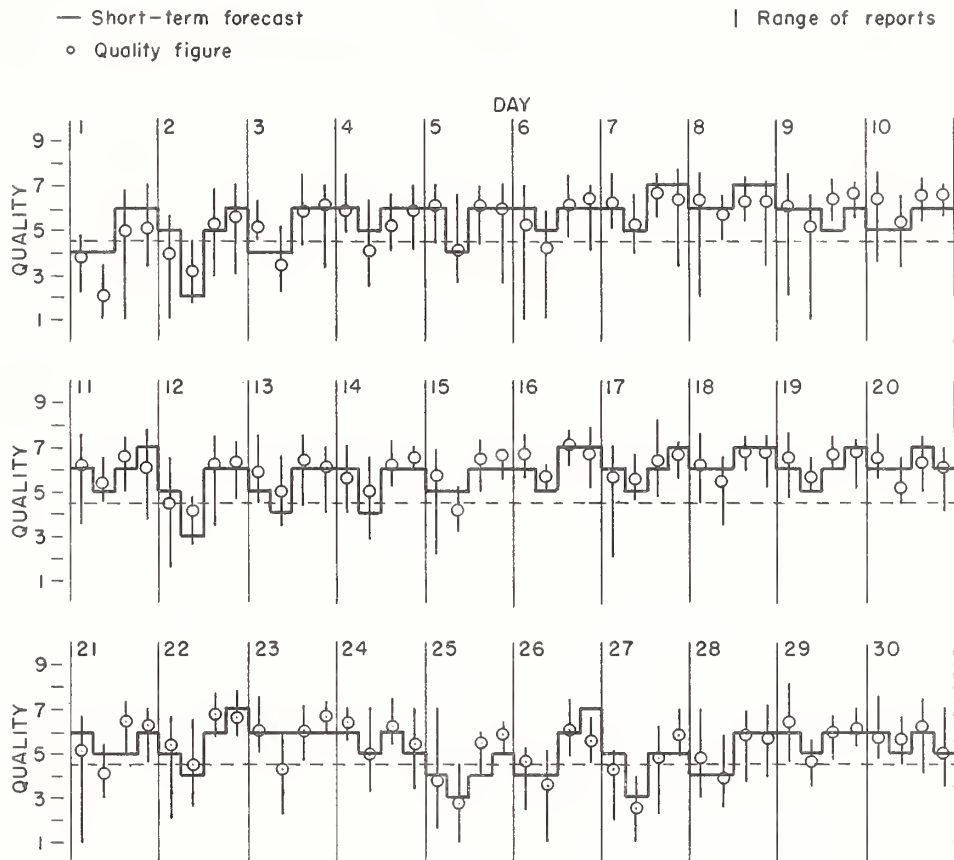
Disturbed Periods P 2 4 0 0
S 3 9 0 0
U 0 1 0 0
F 0 1 0 0

() Represent disturbed values.
All times are Universal Time (U.T.).

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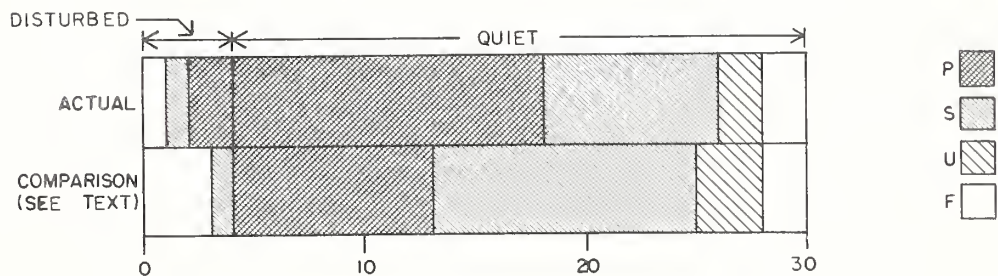
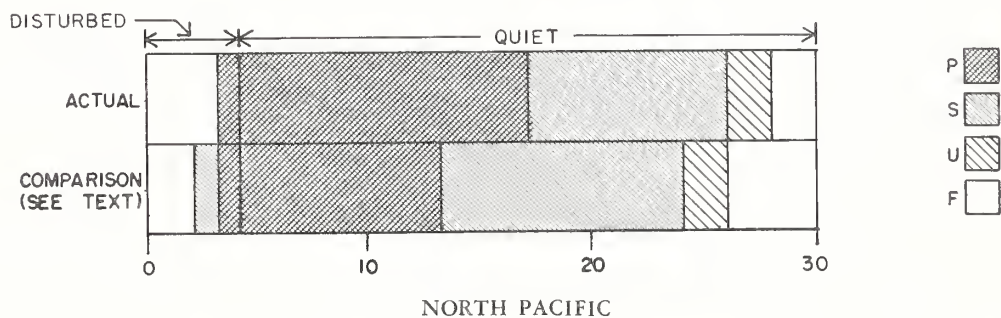
NORTH ATLANTIC

SEPTEMBER 1961

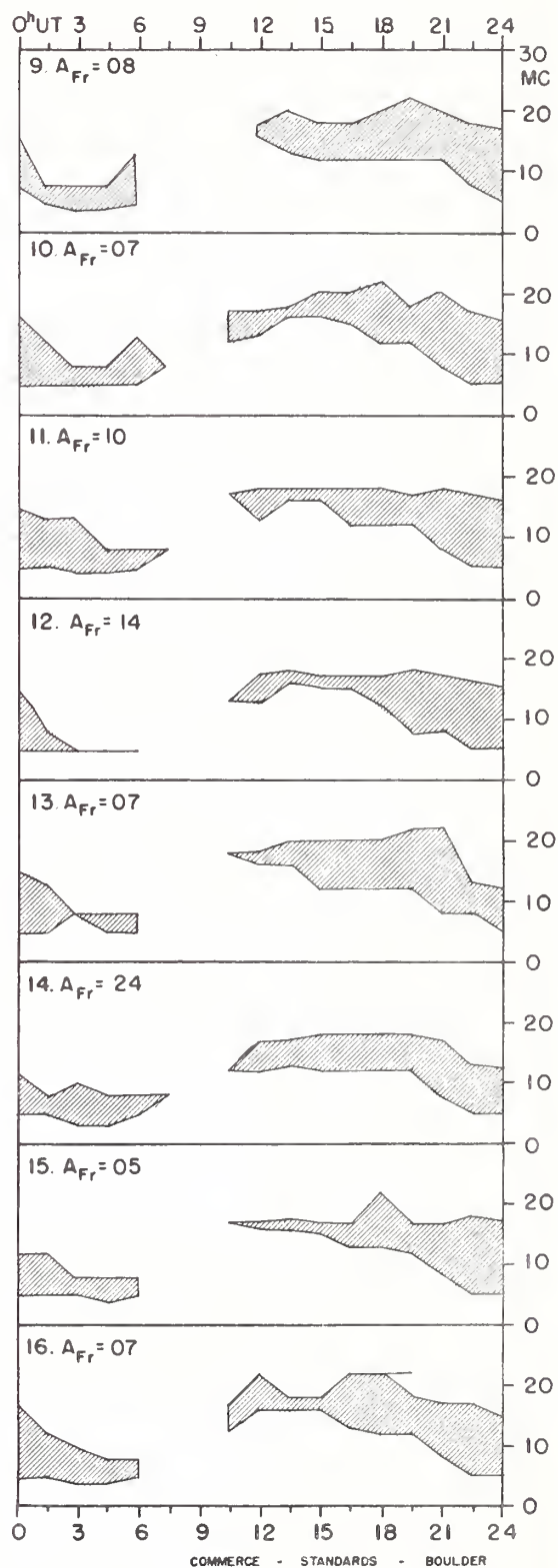
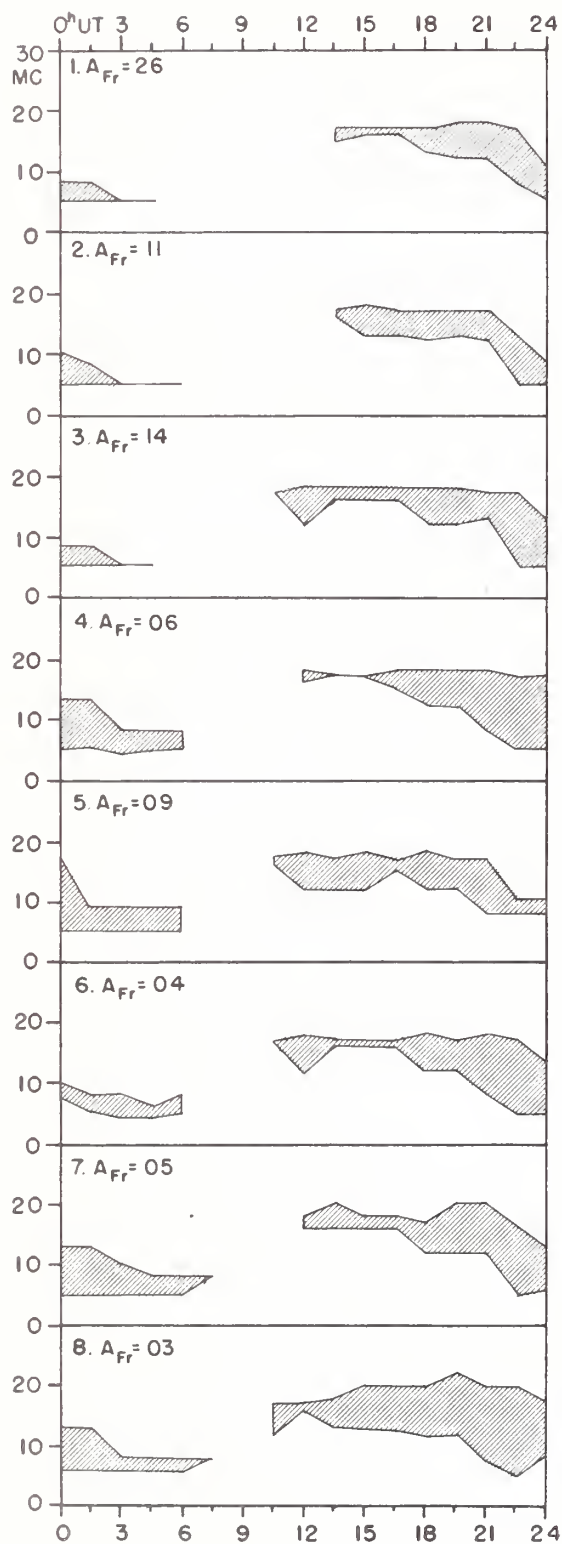


OUTCOME OF ADVANCED FORECASTS
NORTH ATLANTIC

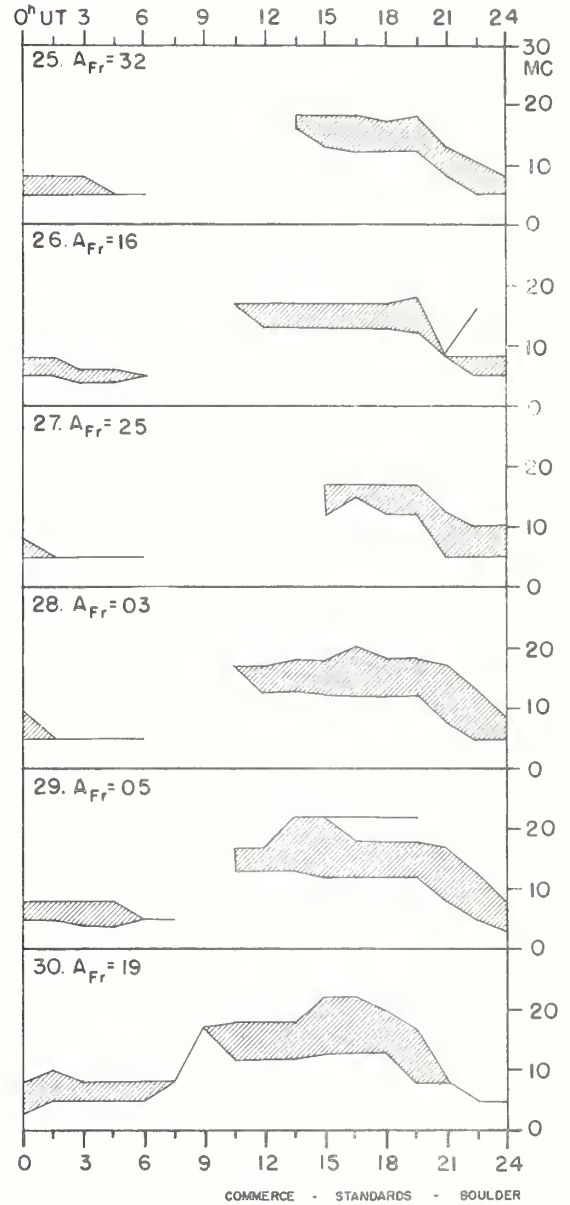
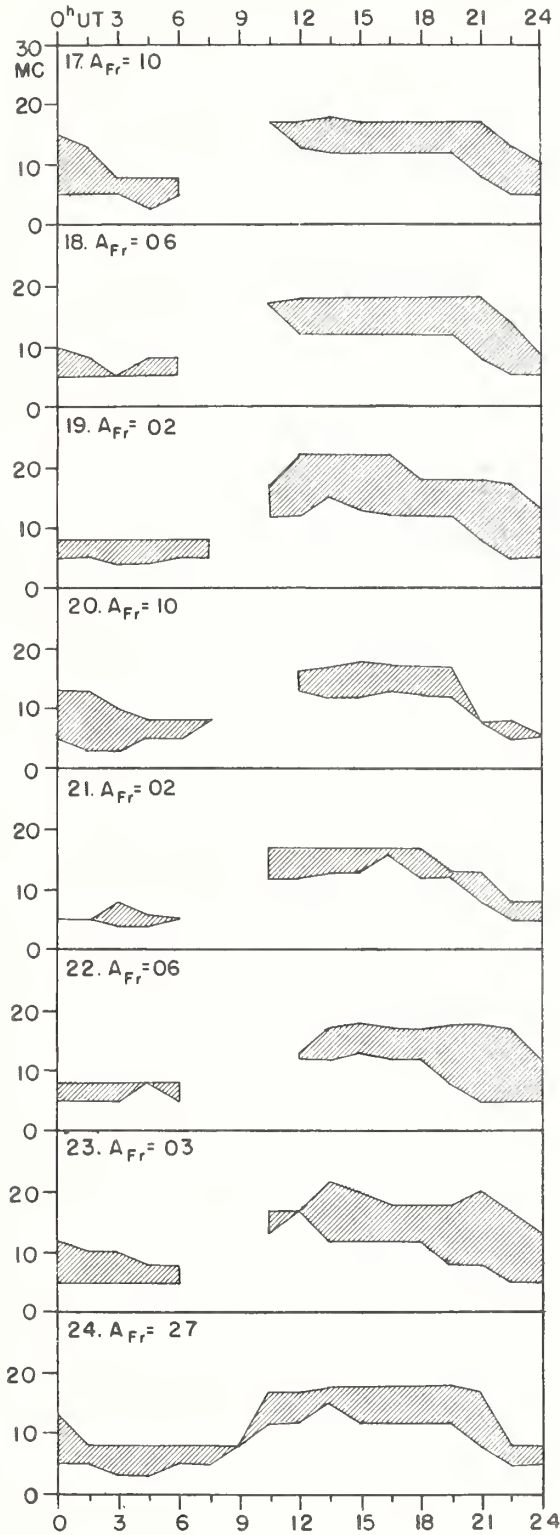
FINAL ESTIMATE



SEPTEMBER 1961



SEPTEMBER 1961



ALERT PERIODS AND SPECIAL WORLD INTERVALS

INTERNATIONAL WORLD DAY SERVICE

OCTOBER 1961

Issued October 1961 Day/Time UT	Advance Geophysical Alert	No. World-Wide Geophysical Alert	Special World Interval
01/1600	Climax Solar Flare, 02/1440Z Ft. Belvoir, Magnetic Storm 26/1940Z Ft. Belvoir, Magnetic Storm, Aurora Probable 28/0812Z	146 Magnetic Storm 30/2111Z	Continue
02/1600		147	Finish
02/1930			
26/2345			
27/1600		148 Magnetic Storm 26/1940Z	
28/1227			
28/1600		149 Magnetic Storm, Aurora Probable 28/0812Z	Start
29/1600		150	Finish

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Erratum:

In CRPL-F 200 Part B, issued April 1961, in Table VIIIa the final entry should be March 1961 28/1600, No. 115, Finish Special World Interval.

International Geophysical Calendar 1962

IXa

Issued October 1961 by the International World Day Service under the auspices of U. R. S. I.

1962		JANUARY					1962	
S	M	T	W	T	F	S		
		1	2	<u>3</u>	<u>4</u>	5	6	
7	8	9	10	11	12	13		
14	15	16	17	18	19	20		
21	22	23	24	25	26	27		
28	29	30	31					

1962		FEBRUARY					1962	
S	M	T	W	T	F	S		
				1	2	3		
4	5	6	7	8	9	10		
11	12	13	14	15	16	17		
18	19	20	21	22	23	24		
25	26	27	28					

1962		MARCH					1962	
S	M	T	W	T	F	S		
				1	2	3		
4	5	6	7	8	9	10		
11	12	13	14	15	16	17		
18	19	20	21	22	23	24		
25	26	27	28	29	30	31		

1962		APRIL					1962	
S	M	T	W	T	F	S		
1	2	3	4	5	6	7		
8	9	10	11	12	13	14		
15	16	17	18	19	20	21		
22	23	24	25	26	27	28		
29	30							

1962			MAY			1962	
S	M	T	W	T	F	S	
		1	2	3	<u>4</u>	<u>5</u>	
6	7	8	9	10	11	12	
13	14	15	16	17	18	19	
20	21	22	23	24	25	26	
27	28	29	30	31			

1962		JUNE					1962	
S	M	T	W	T	F	S		
					1	2		
3	4	5	6	7	8	9		
<u>10</u>	<u>11</u>	<u>12</u>	<u>13</u>	<u>14</u>	<u>15</u>	<u>16</u>		
<u>17</u>	18	<u>19</u>	<u>20</u>	<u>21</u>	22	23		
24	25	26	27	28	29	30		

1962		JULY					1962	
S	M	T	W	T	F	S		
1	2	3	4	5	6	7		
8	9	10	11	12	13	14		
15	16	17	18	19	20	21		
22	23	24	25	26	27	28		
29	30	31						

1962		AUGUST					1962	
S	M	T	W	T	F	S		
			1	2	3	4		
5	6	7	8	9	10	11		
12	13	14	15	16	17	18		
19	20	21	22	23	24	25		
26	27	28	29	30	31			

1962		SEPTEMBER					1962	
S	M	T	W	T	F	S		
						1		
2	3	4	5	6	7	8		
9	10	11	12	13	14	15		
16	17	18	19	20	21	22		
23	24	25	26	27	28	29		
30								

1962		OCTOBER					1962	
S	M	T	W	T	F	S		
	1	2	3	4	5	6		
7	8	9	10	11	12	13		
14	15	16	17	18	19	20		
21	22	23	24	25	26	27		
28	29	30	31					

1962		NOVEMBER					1962	
S	M	T	W	T	F	S		
				1	2	3		
4	5	6	7	8	9	10		
11	12	13	14	15	16	17		
18	19	20	21	22	23	24		
25	26	27	28	29	30			

1962		DECEMBER					1962
S	M	T	W	T	F	S	
						1	
2	3	4	5	6	7	8	
9	10	11	12	13	14	15	
16	17	18	19	20	21	22	
23	24	25	26	27	28	29	
30	31						

1963		JANUARY						1963	
S	M	T	W	T	F	S			
		1	2	<u>3</u>	<u>4</u>	5			
6	7	8	9	10	11	12			
13	14	15	16	17	18	19			
20	21	<u>22</u>	<u>23</u>	<u>24</u>	<u>25</u>	26			
27	28	29	30	31					

17 Regular World Day (RWD) 18 RWD with highest priority

31 Day of Solar Eclipse

7 Day with unusual meteor shower activity

16 17 18 19 . . . World Synoptic Interval, (WSI), combining World Meteorological Interval, Regular World Interval, International Rocket Week.

Supplementary copies are available upon request to the Secretary General of U. R. S. I., 7 place Danco, Brussels 18.

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1. **Purpose**—The International Geophysical Calendar 1962 designates selected days and intervals for special attention for geophysical experiments and analysis during 1962 and is thus a framework for world-wide co-ordination. It serves mainly the branches of geophysics dealing with the earth's atmosphere in which many phenomena vary significantly during the course of a year. In some experiments, such as the routine recording of variations of the earth's magnetic field, the observing and analysis programs at observatories are normally carried out at a uniform level throughout the year; in these cases the Calendar is not needed. However, in many other experiments (for example, rocket experiments), it is not practical or meaningful to carry out the same program on each and every day. Here the Calendar can provide a useful mechanism for coordination: experimenters will know that their colleagues in other countries, in other laboratories and in other disciplines will tend to also carry out experiments on the days or intervals marked on the Calendar. In this way, results of experiments may later be more easily and usefully compared.

In some scientific fields, international scientific organizations have made specific recommendations for programs to be done on days or intervals marked on the Calendar. In others, the arrangements are informal or self-evident. Some examples are given below.

2. **Regular World Days (RWD)** are intended for observations or analyses or special experiments which as a practical matter can be done for only about 10% of days and should be spaced throughout the year. Examples in Ionospheric Physics are: oblique incidence pulse transmission and reception; absorption measurement by pulse reflection technique; extended observing schedule for whistlers and V.L.F. emissions; vertical sounding ionograms by f-plot, h'-plot, etc.; hourly reduction from ionograms of F-region true height parameters "h_o" and "q_o".

The RWD with highest priority are for similar work which can be undertaken for only one day each month. A specific example is the program recommended by U.R.S.I. for exchange of copies of original ionograms in ionospheric vertical sounding work.

3. **World Synoptic Intervals (WSI)** are intended for experiments which for practical reasons cannot be carried on continuously, but for which statistics of seasonal variations are especially needed. To simplify the Calendar the Regular World Intervals, World Meteorological Intervals and International Rocket Weeks of past years have been combined for 1962 into one set of intervals. For the sake of the synoptic meteorological rocket programs as designated by COSPAR and WMO the intervals have been placed about a month after the equinoxes and solstices—the times of marked seasonal change in certain upper air meteorological phenomena. During WSI meteorological rockets at a network of stations are launched at least once daily. Balloon sounding programs either with special instruments or launchings to unusually high balloon altitudes have been planned during WSI. Other programs such as ionospheric drift and high atmosphere wind measurements are other examples of suitable programs for such intervals. In several disciplines sample detailed data will provide a sampling of variations throughout the year but with improved statistics during one month of each season.

4. **Other Special Days** marked on the Calendar include the days of solar eclipses, two in 1962 and one in January 1963, when special programs may be expected to be carried out in appropriate parts of the world to study the sun and any eclipse effects on the earth's atmosphere. Ionospheric stations customarily increase their observing programs even if the magnitude of eclipse at their location is small. Many solar activity observatories take extra observations and issue specially detailed reports to assist the interpretation of the geophysical effects. Also shown are days when meteor shower activity is unusual. These include some of the important visual meteor showers and also unusual showers observable mainly by radio and radar techniques. Attention is also called to these days in case ionization produced by meteors may account for unusual effects in other geophysical experiments. The Annual World Meteorological Day, selected as March 23 (not marked on the Calendar), was first celebrated in 1961. Its purpose is to make the services which national meteorological services can render to the various branches of economic development, as well as the activities of the World Meteorological Organization, better known and appreciated by the public of all countries.

5. **Special Intervals not appearing on Calendar**—Periods of great magnetic, auroral and ionospheric disturbance are also of considerable geophysical interest. Worldwide coordination of observation is especially useful for stations not near the auroral zones, that is, places where the beginning of a major disturbance may not be immediately apparent from local observations. Notices of Geophysical Alerts and Special World Intervals (SWI) are distributed by telegram or radio broadcast on a current basis by the solar-geophysical Regional Warning Centers, whose telegraphic addresses are as follows: AGIWARN WASHINGTON (U.S.A.); AGI KOKUBUNJI (Japan); NIZMIR MOSCOW (U.S.S.R.); IONOSPHERE DARMSTADT (G.F.R.) or GENTELABO PARIS (France) or A.G.I. NEDERHORSTDENBERG (Netherlands). The meteorological telecommunications network coordinated by W.M.O. carries such information once daily soon after 1600 U.T. Many geophysical stations increase their programs or carry on special experiments during disturbed periods. Prompt notification of immediately significant geophysical observations and of major solar flare events which have important and sometimes long lasting geophysical effects, are also undertaken through the Regional Warning Centers.

5. *The International World Day Service (I.W.D.S.)* was established in 1958 by the International Council of Scientific Unions (I.C.S.U.) and is administered by the International Scientific Radio Union (U.R.S.I.), 7, Place Emile Danco, Brussels 18, Belgium. This Calendar has been drawn up by A. H. Shapley and J. V. Lincoln in consultation with interested I.C.S.U. unions and committees and representatives of the W.M.O. A fuller description of the Calendar has appeared in the U.R.S.I. Information Bulletin and various widely available scientific publications.

